

APPENDIX F

Furan and Dioxin Distribution in Floodplain Soil

This appendix describes the analytical data and methods used to evaluate the distribution of polychlorinated dibenzo-p-furans (furan) and polychlorinated dibenzo-p-dioxins (dioxin) in Tittabawassee River floodplain soil, and presents the findings of the influencing factor evaluation.

Evaluation Objective

The objective of the soil evaluation was to characterize the distribution of furans and dioxins in floodplain soil and to identify possible patterns or trends in their distribution that might improve prediction of furan and dioxin concentrations in portions of the study area that have not been sampled.

Analytical Data Used in Evaluation

Furan and dioxin data are presented in this appendix as toxic equivalent (TEQ) concentrations. The 1998 World Health Organization (WHO) mammalian toxic equivalency factors (TEF) were applied in deriving estimates of TEQ. The TEFs that were used for this evaluation are provided in Table 2-4 of the Tittabawassee River and Floodplain Remedial Investigation (RI) Work Plan (RIWP). The measured concentration of each furan and dioxin congener is multiplied by the corresponding TEF, and the products are summed to determine the TEQ concentration as shown in Equation 1:

$$\text{Total TEQ (2,3,7,8-TCDD equivalents)} = \sum (\text{Congener-specific concentration} * \text{Congener-specific TEF}) \quad (1)$$

The data set used in the preliminary TEQ distribution evaluation included all existing soil samples for which the results for 17 congeners were available and the TEQ could be calculated. The data set consisted of 414 surface soil (0 to 0.5 feet below ground surface [bgs]) samples and 273 subsurface soil (greater than 0.5 feet bgs) samples for a total of 687 samples located within the 100-year Floodplain and 65 soil samples (39 surface soil samples and 26 subsurface soil samples) located outside of the 100-year Floodplain. The sample information is provided in Table F-1.

The data set used in the influencing factor evaluation consists of the TEQ results for surface soil samples collected during the 2005 Tittabawassee River and Floodplain Scoping Study (Scoping Study). While other surface soil samples have been obtained in the vicinity of the Scoping Study areas, they were not collected in the same systematic manner as those collected during the Scoping Study and because of this were not included in the statistical evaluations presented here. However, TEQ results for these additional samples were reviewed in the context of available location information to determine whether the results were consistent with the overall findings of the influencing factor evaluation. A total of 140 surface soil results were used: 63 from Area 1, 64 from Area 2, 7 from Area 3, and 6 from the Confluence Area. The individual Scoping Study samples are listed in Table F-2.

Preliminary Distribution Evaluation

The preliminary evaluations of TEQ distributions consisted of graphing TEQ concentrations by distance downriver from the Dow Chemical Company (Dow) Midland Plant (Midland Plant), as shown in Figure 2-24 and summarizing the distribution of TEQs within the 100-year Floodplain, as presented in RIWP Table 2-6.

The median TEQ concentration in surface soil over the length of the study area, within the 100-year Floodplain is 240 parts per trillion (ppt); however, concentrations vary over five orders of magnitude, with TEQ concentrations ranging from 0.31 ppt to 8,900 ppt. The scattered distribution of TEQs along the length of the study area indicates a lack of a longitudinal trend with distance from the Midland Plant. Higher TEQ concentrations tend to be found in surface soil compared to deeper subsurface soil, with median values of 240 ppt and 57 ppt, respectively (RIWP Table 2-6). However, the highest reported TEQ concentration of 24,000 ppt occurred in a subsurface sample.

Influencing Factor Evaluation

Variables evaluated as part of the influencing factors evaluation included:

- Distance from the Midland Plant.
- Location relative to the 8-year Floodplain (note the 8-year and 100-year Floodplain boundaries are approximately coincident in Scoping Study Areas 1 and 2), as represented by the March 2004 flood (inside versus outside); distance from the river, measured several different ways.
 - Absolute lateral distance from the river.
 - Distance relative to the 8-year Floodplain boundary.
 - Streamline distance, which represents the proximity of a floodplain soil sampling location to the river and was calculated as the distance measured along a flow path estimated using hydraulic simulations of 8-year flooding conditions. In cases where the modeled streamline distance was “infinite,” a value of 10,000 was substituted
- Hydrologic model estimates of velocity and shear stress.
- Elevation relative to the elevation of the river in the Scoping Study Area (for example, Area 1 or Area 2).
- Particle size, expressed several different ways:
 - Percent clay, percent sand, percent silt, and percent gravel.
 - Soil classified as clay, silt, sand, gravel or “mixture.”
 - A continuous grain size measurement computed by first multiplying each grain size percentage by the average size per sieve and then obtaining the sum (that is, $.005 \times \text{percent clay} + 0.04 \times \text{percent silt} + 2.5 \times \text{percent sand} + 27.5 \times \text{percent gravel}$).

- Total organic carbon.
- Condition of the soil (disturbed versus undisturbed).

In addition, the relationship between TEQ and other factors including side of the river (east versus west) and vegetation type were considered, but these factors were not explored as potential *predictors* of TEQ.

The assigned variables for each sample used in the evaluation are listed in Table F-2.

Data Evaluation Approach and Results

Graphical data displays, means comparisons, and regression analysis were used to evaluate the relationships between TEQ concentrations and potential influencing factors.

Graphical Data Displays

Graphical data displays included plots of log-transformed TEQ results against each influencing factor as well as plots depicting the relationships among influencing factors. For each continuous factor, a scatterplot of TEQ concentrations versus the influencing factor was developed. In these plots, symbols are used to distinguish points that are inside versus outside the 8-year Floodplain (open symbols depict points inside the 8-year Floodplain while solid symbols depict points outside the 8-year Floodplain). Separate plots were developed for each area and a log scale was used for the TEQ concentrations. The plots are included in Attachment F-1.

For each categorical factor, boxplots of TEQ concentrations were constructed. The bottom of each box represents the 25th percentile, the top represents the 75th percentile, and a line is drawn at the median. The lines extending from the top and bottom of each box extend to the lowest and highest concentrations that are not “outliers,” where an outlier is defined as an observation that is more than 1.5 times the interquartile range above or below the median. The interquartile range is the distance between the 75th and 25th percentile. Points that fall outside these boundaries are indicated by separate lines. Separate boxes were drawn for points that are inside versus outside the 8-year Floodplain as well as for each study area. A log scale was used to plot the TEQ concentrations. The boxplots are included along with the scatterplots in Attachment F-1.

From the boxplots, it can be seen that one unusually high TEQ concentration was observed outside the 8-year Floodplain boundary in Area 2 (TEQ of 1,600 ppt). Although there are other concentrations from within the floodplain in Area 2 that are substantially higher than this value, it is over 20 times higher than any other Area 2 concentration outside the 8-year Floodplain boundary. An evaluation of the other scatterplots and boxplots shows that it appears to be unusual relative to each potential explanatory factor. This result may be attributable to man-made redistribution of material from close to the river to outside the floodplain boundary. This result was identified as an outlier and was omitted from most of the subsequent statistical analyses in order to understand the patterns and relationships that are more typical of Areas 1 and 2.

In addition to the scatterplots and boxplots showing the relationship between TEQ and each influencing factor, the relationships among influencing factors also were evaluated

graphically using scatterplots. Attachment F-2 contains three scatterplot matrixes – one for all areas combined and one each for study Areas 1 and 2 separately. The scatterplot matrixes show the values for each key influencing factor plotted against TEQ and also plotted against each other's key exploratory factor. In each plot, symbols are used to distinguish points that are inside versus outside the 8-year Floodplain (open symbols depict points inside the floodplain while solid symbols depict points outside the floodplain). A log scale was used for TEQ values.

Means Comparisons

The next step in the data evaluation was to evaluate the statistical significance of each individual potential influencing factor. This assessment was based primarily on Analysis of Variance (ANOVA), but also included developing tables of summary statistics (means, medians, standard deviations, ranges, and proportion of results exceeding 90 ppt). ANOVA is a means comparison approach in which the amount of variability that can be attributed to each influencing factor is compared to the residual (or random) variability using an F-test. If the ratio of the variability associated with a given factor to the residual variability is higher than can be explained by chance alone, the factor is said to be statistically significant. P-values represent the likelihood that the results can be explained by chance alone, and for this evaluation, p-values less than 0.05 were concluded to be statistically significant.

The ANOVA models used in this evaluation were performed using natural-log-transformed TEQ concentrations because preliminary evaluations revealed that the TEQ results are more consistent with a lognormal distribution than with a normal distribution. Each potential explanatory factor was evaluated separately, meaning that the variability attributable to each factor was considered individually. Because of the limited amount of data available for Area 3 and the Confluence Area, statistical inferences could not be made for the ANOVA and thus only results for Areas 1 and 2 were included. In addition, the Area 2 outlier discussed above was omitted from the calculations. Table F-3 shows the ANOVA results. From the table it can be seen that each factor considered alone is statistically significant, with the exception of the Side of River. Potential explanatory factors with a p-value of less than 0.0001 are considered highly statistically significant.

Regression Analysis

Finally, a stepwise regression analysis was performed to assess the relative importance of each potential influencing factor. This analysis was performed using log-transformed TEQ concentrations and included only Area 1 and Area 2 results. In addition, the Area 2 outlier was omitted. The stepwise regression analysis was used to find an “optimal” TEQ prediction model, as described below:

- The first step is to fit a series of one-factor prediction models. The factor that explains the most variability in TEQ concentrations is selected for inclusion in the model, as long as it is significant at the 0.15 level.
- The next step is to fit another series of two-factor prediction models (each of which include the first factor selected and one remaining factor). The factor that explains the

most variability in TEQ concentrations is selected for inclusion as the second term in the model, as long as it is significant at the 0.15 level.

- The first selected factor is then tested to determine whether it is still significant at the 0.15 level (even with the other factor present). If not, the factor is dropped from the model.
- These steps are repeated until all of the factors that are significant at the 0.15 level have been added to the model and all factors that are no longer significant at the 0.15 level after other terms have been added have been dropped.

Table F-4 provides a summary of the stepwise regression. The table shows the order in which terms were entered or removed, the cumulative percent of variability explained by the model, the p-value associated with testing the significance of each factor at a given step, and the p-value associated with testing the significance of each factor in the final model.

Stepwise regression models were also run separately for Areas 1 and 2. Although there were some differences with respect to the order in which factors were entered into the model and with respect to the final factors considered to be significant, the overall results were consistent whether the areas were combined or evaluated separately. The detailed results of the stepwise regression by area are not presented here. Cases where there were differences by area are discussed below.

Results for Individual Potential Influencing Factors

This section provides a summary of the results for each potential influencing factor.

Distance from the Midland Plant

Distance from the Plant was found to be significant when data for all areas were combined and when no other factors were considered. However, *Distance from the Plant* is highly confounded with study area and the “significant” differences can be attributed to the fact that TEQ concentrations in Area 2 tended to exceed those in Area 1, which causes the TEQ concentration to appear to increase as a function of distance from the Midland Plant. When all of the other factors were considered in the stepwise regression model, distance from the Midland Plant was never a significant factor.

In addition to evaluating the areas combined, the relationship between *Distance from the Plant* and TEQ was also considered separately for each area. Within Area 2, there was no relationship between TEQ concentration and distance from the Midland Plant. Within Area 1, TEQ concentrations within the 8-year Floodplain appear to increase as a function of distance from the Midland Plant. However, this was the least significant of the factors that were included in the final prediction model for Area 1 (based on the stepwise regression analysis performed for Area 1 alone).

Inside-Outside 8-Year Floodplain

TEQ concentrations outside the 8-year Floodplain boundary are significantly lower than concentrations inside the 8-year Floodplain boundary. Table F-5 summarizes the median

and range of concentrations inside and outside of the 8-year Floodplain boundary, for each of the Scoping Study areas.

In addition, because of the importance of the factor, a separate regression model was evaluated that included only *Floodplain* as an explanatory factor. This regression analysis, which was performed using Area 1 and Area 2 Scoping Study data only, showed that approximately 61 percent of the variability in TEQ concentrations is explained by the location of a sample relative to the 8-year Floodplain boundary.

Finally, the number of results that exceeded the 90 ppt threshold was evaluated. Only two out of 42 results outside the 8-year Floodplain boundary exceeded 90 ppt. Thus, the observed exceedance rate is approximately 5 percent. Assuming that the samples from Areas 1 and 2 are representative of the entire length of the river and assuming that samples collected immediately outside the 8-year Floodplain boundary are representative of all areas outside the floodplain, the expected proportion of all locations outside the 8-year Floodplain boundary that will exceed 90 ppt is 5 percent. However, in addition to the assumptions described above, there is additional uncertainty associated with this likelihood because only as subset (42) samples of all the possible locations outside the 8-year Floodplain were sampled. The uncertainty associated with likelihood can be accounted for by computing a 90 percent confidence interval. The 90 percent confidence interval ranges from 1 percent to 15 percent. Details related to the two results outside the 8-year Floodplain that exceeded 90 ppt are provided below:

- In Area 1, there was one location outside the 8-year Floodplain with a concentration of 100 ppt. This location fell just outside of the 8-year Floodplain, and the observed concentration was consistent with those nearby but within the 8-year Floodplain. In addition, the concentration is consistent with what should be expected based on the streamline distance. This point is also outside the 100-year Floodplain.
- In Area 2, there was one location outside the 8-year Floodplain with a TEQ concentration of 1,600 ppt, much higher than the 90 ppt line. This result occurred at a sandy, disturbed location outside of both the 8-year and 100-year Floodplains. The result is inconsistent with what would be expected based on the TEQ patterns observed elsewhere in Area 1 and Area 2, and cannot be attributed to any of the potential explanatory factors. This result may be attributable to man-made redistribution of material from close to the river to outside the floodplain boundaries. This result was omitted from most of the statistical analyses to understand the patterns and relationships that are more typical of Areas 1 and 2.

The results related to the 8-year Floodplain boundary cannot necessarily be extrapolated to the entire region because they represent only a small number of sampling areas and only cover locations relatively close to the 8-year Floodplain boundary. However, they do suggest that the 8-year Floodplain boundary may be a good predictor of whether concentrations will be below 90 ppt TEQ.

Distance-Related Metrics

Three different explanatory factors were considered that each describe the distance between a sampling point and the river, but using different metrics. These include:

- The actual distance between the sampling point and the river (*Distance from River*).
- The distance between the sampling point and the river relative to the 8-year Floodplain width (*Percent Floodplain* = Distance from River to Sampling Point divided by Distance from River to 8-year Floodplain Boundary). For example, a location that is one-quarter of the way between the river and the 8-year Floodplain boundary would have a *Percent Floodplain* value of 0.25..
- The distance measured along a flow path estimated using hydraulic simulations of 8-year flooding conditions. *Streamline Distance* is intended to serve as a simplified surrogate for the complex suite of processes that result in the scour, resuspension, and transport of a sediment particle, and its subsequent settling and deposition in the floodplain. In general, low *Streamline Distance* implies a strong transport linkage to sediments in the river, and a greater probability of transport and deposition of river sediments to a given location.

Each of these factors was considered individually and together.

Distance from the River is a significant explanatory factor when considered alone, and a model that includes only this term explains 36 percent of the variability in TEQ concentrations. However, both *Percent Floodplain* and *Streamline Distance* explain a greater percent of the variability when considered alone (48 percent and 65 percent, respectively). In the stepwise regression analysis that was performed using data for both Areas 1 and 2, *Distance from the River* was never entered into the model because it did not explain as much of the variability in TEQ concentrations as the other factors, and after those terms were entered it did not explain any additional variability. Similarly, in the stepwise regression analysis performed for Area 1 alone, this term was never entered into the model. *Distance from the River* was entered in the stepwise regression model for Area 2 alone, but was the least significant of all the explanatory factors in the final prediction model.

Percent Floodplain is a significant explanatory factor when considered alone, and a model that includes only this term explains 48 percent of the variability in TEQ concentrations. This factor was included in the final prediction model for the stepwise regression based on Areas 1 and 2 combined and in the final model for Area 1 alone. It was not included in the final model for Area 2 alone.

The final distance-related factor is *Streamline Distance*. This factor is the most significant of the three distance factors, explaining 65 percent of the variability in TEQ concentrations. This factor was included in the final prediction model when stepwise regression was performed based on Areas 1 and 2 combined and in the final models when Areas 1 and 2 were evaluated separately.

Because *Percent Floodplain* and *Streamline Distance* were both included in the final prediction model for Areas 1 and 2 combined, additional investigations were performed to understand the relative contributions of each factor. When both terms are included in the model, 67 percent of the variability is explained, suggesting that *Streamline Distance* provides a significant refinement to the model that includes *Percent Floodplain* alone, but that *Percent Floodplain* only increases the accuracy of the prediction based on *Streamline Distance* by a small amount. A model that includes *Percent Floodplain*, *Streamline Distance*, and *Floodplain* explains 71 percent of the variability in TEQ concentrations.

Other Hydrologic Model Factors

In addition to computing *Streamline Distance*, two related factors were computed using hydraulic simulations of 8-year flooding conditions – *Velocity* and *Shear Stress*. Both of these factors are highly correlated with *Streamline Distance* and are significant explanatory factors when considered alone. However, only *Velocity* was included in the final prediction model that already included *Streamline Distance*.

Elevation

Elevation was expressed in terms of the ratio of the elevation at a given sampling point to the average elevation of the river in a given study area. *Elevation* (expressed as a percent) was found to be significant when no other factors were considered. However, it is confounded with several other factors, including *Floodplain* (higher elevations occur outside the floodplain) and *Study Area* (higher relative elevations occur in Area 1). It is also moderately correlated with the distance-related factors. In the stepwise regression analysis, *Elevation* was entered as a significant explanatory factor. However, after other factors, including *Floodplain*, *Percent Distance*, and *Study Area*, were entered into the prediction model as explanatory factors, *Elevation* was no longer significant and was dropped from the final model.

In addition, it is interesting to note that *Elevation* was not entered into either the Area 1 or the Area 2 prediction models when the stepwise regression analysis was performed for the two areas separately. This appears to be due to the fact that *Elevation* does not explain differences in TEQ concentrations within either area. It was entered into the model that was fit to the two areas combined because both *Elevation* and TEQ values differ between the two areas. Therefore, it appears as if *Elevation* is a surrogate for Study Area.

These results suggest that other explanatory factors provide a better prediction of TEQ than *Elevation* and once these other factors have been taken into account, *Elevation* does not provide a significant refinement to the model. The additional sampling that will be performed as part of the RIWP will be used to verify whether this relationship is true when other areas within the floodplain are evaluated.

Grain Size and TOC

Three different metrics for grain size were considered. The first set of metrics was the percentages corresponding to different particle sizes (*Percent Clay*, *Percent Silt*, *Percent Sand*, and *Percent Gravel*). In addition, a categorical *Soil Type* variable was created. If the percentage corresponding to any given grain size category exceeded 50 percent, *Soil Type* was assigned to be that grain size category (for example, if *Percent Sand* was 57 percent, a *Soil Type* of “Sand” was assigned). Otherwise, the *Soil Type* was said to be “Mixed.” The final grain-size related factor was a continuous variable calculated by first multiplying each grain size percentage by the average size per sieve and then obtaining the sum (that is, $.005 \times \text{Percent Clay} + 0.04 \times \text{Percent Silt} + 2.5 \times \text{Percent Sand} + 27.5 \times \text{Percent Gravel}$).

Both TOC and each of the grain size metrics were significantly related to TEQ concentrations. As expected, the data show that higher TOC and TEQ concentrations also tended to correspond to locations with higher percentages of silts, particularly within the 8-year Floodplain. Although neither TOC nor grain size alone provide a strong prediction

of TEQ concentrations, the results of the evaluations show that they help to refine the predictions based on the other factors. The best grain size metric was found to be *Percent Silt*, and both TOC and *Percent Silt* were included in the final prediction model determined using stepwise regression.

In Area 1, sandy materials predominate at most locations. However, there are several locations, both within and outside the floodplain boundary where more silty samples were observed. Outside the 8-year Floodplain, these silty samples do not correspond to higher TEQ concentrations. Inside the 8-year Floodplain, they correspond to higher TOC and TEQ concentrations. However, they also correspond to very short streamline distances.

Within the 8-year Floodplain in Area 2, locations with higher percent silts also correspond to higher TOC and TEQ concentrations, even at locations with longer streamline distances. In this case, the percent silt appears to "explain" higher TEQ concentrations that are not explained by streamline distance. However, in Area 2 there also are many locations with higher percent sands within the 8-year Floodplain that have high TEQ concentrations. In these cases, the concentrations appear to be attributable to streamline distance.

These relationships can be observed in the plots in Attachment F-3. These plots show TEQ plotted versus *Streamline Distance* and *Percent Floodplain*, with different symbols indicating the different soil types.

Disturbance and Vegetation Type

TEQ concentrations at disturbed locations are significantly higher than concentrations at undisturbed locations, particularly within the 8-year Floodplain boundary. Table F-6 summarizes the median and range of concentrations inside and outside of the 8-year Floodplain boundary in Study Areas 1 and 2.

The *Disturbance* factor was found to be significant whether considered by itself or in the stepwise regression model based on data from both Areas 1 and 2. When Area 1 was considered by itself, *Disturbance* was not included in the final prediction model, but it was included when Area 2 was considered by itself.

Vegetation was also considered as a potential explanatory factor. However, this potential explanatory factor is confounded with Disturbance (that is, "light forest" and "heavily forested" areas corresponded to disturbed soils and "crops," "shrubs," and "grass" corresponded to undisturbed soil). When the relationship between *Vegetation* and TEQ was explored, the primary differences were between forested areas and nonforested areas. Because *Vegetation* is a confounding factor with *Disturbance*, it is no longer considered a strong explanatory factor.

Side of River

Side of River (east versus west) was evaluated as a potential explanatory factor. Only limited data were available from the west side of the river, but no differences were found, whether this factor was considered alone or with other explanatory factors.

Study Area

Similar patterns and relationships with explanatory factors were observed in Areas 1 and 2. However, the average concentrations within the 8-year Floodplain in Area 2 were significantly higher than those in Area 1, and the differences cannot be explained simply by the other influencing factors. Because only two areas have been sampled extensively, it is not currently known whether the differences are attributable to the degree of sinuosity or some other characteristic of these areas. It should be noted that for locations outside the 8-year Floodplain, the average concentrations were not higher in Area 2 than in Area 1.

Preliminary data for Area 3 and the confluence area suggest that the relationships observed in Areas 1 and 2 will most likely also hold in the other areas. However, in Area 3, there are only three surface soil results outside the 8-year Floodplain, and four within the 8-year Floodplain. In the Confluence Area, all samples except for one were collected from outside the 8-year Floodplain. As a result, extensive evaluations and inferences about explanatory factors in these two areas are not possible.

Conclusions

A number of preliminary conclusions can be reached based on the influencing factors evaluation. The following bullets summarize the current understanding.

- TEQ concentrations outside the 8-year Floodplain boundary are significantly lower than concentrations inside the 8-year Floodplain boundary. Regression analysis performed using Area 1 and Area 2 scoping study data suggests that approximately 61 percent of the variability in TEQ concentrations can be explained by the location of the sample relative to the 8-year Floodplain boundary.
- For the Scoping Study areas, the proportion of locations outside the 8-year Floodplain with concentrations above 90 ppt is less than 15 percent, with 95 percent certainty, and could be as low as 1 percent. These results cannot necessarily be extrapolated to the entire region because they represent only a small number of sampling areas and only cover locations relatively close to the 8-year Floodplain boundary. However, they do suggest that the 8-year Floodplain boundary may be a good predictor of whether concentrations will be below 90 ppt.
- Percent Floodplain, which is the distance from a location to the river relative to the 8-year Floodplain width, is significantly related to TEQ concentrations. This factor, by itself, explains 48 percent of the variability in TEQ concentrations. A prediction equation that includes both floodplain (in versus out) and "percent floodplain" explains 65 percent of the variability in TEQ concentrations. This suggests that knowing whether a location is inside or outside of the 8-year Floodplain provides a good starting point for estimating the concentration, but that, particularly within the floodplain, knowing how close a sample is to the floodplain boundary provides a significant refinement to the estimate.
- Another significant distance-related factor is "streamline distance," which is the distance measured along a flow path estimated using hydraulic simulations of 8-year flooding conditions. In general, low streamline distance implies a strong transport linkage to sediments in the river, and a greater probability of transport and deposition of river

sediments to a given location. This factor, by itself, explains 65 percent of the variability in TEQ concentrations. A prediction equation that includes both floodplain (in versus out) and streamline distance explains 70 percent of the variability in TEQ concentrations. An equation that includes floodplain, percent floodplain, and streamline distance explains 71 percent of the variability. This suggests that between the two distance measures, streamline distance is the stronger predictor of TEQ concentrations. Streamline distance was only computed for Areas 1 and 2, so these statements have not been verified for Area 3 or the Confluence Area.

- TEQ concentrations are positively correlated with TOC concentrations. As expected, higher TOC and TEQ concentrations also tended to correspond to locations with higher percentages of silts, particularly within the 8-year Floodplain. Although neither TOC nor grain size alone provide a strong prediction of TEQ concentrations, they help to refine the predictions based on the other factors described above.
- In Area 1, sandy materials predominate at most locations. However, there are several locations, both within and outside the 8-year Floodplain boundary where more silty samples were observed. Outside the 8-year Floodplain, these silty samples do not correspond to higher TEQ concentrations. Inside the floodplain, they correspond to higher TOC and TEQ concentrations. However, they also correspond to very short streamline distances.
- Within the 8-year Floodplain in Area 2, locations with higher percent silts also correspond to higher TOC and TEQ concentrations, even at locations with longer streamline distances. In this case, the percent silt appears to "explain" higher TEQ concentrations that are not explained by streamline distance. However, in Area 2 there also are many locations with higher percent sands within the 8-year Floodplain that have high TEQ concentrations. In these cases, the concentrations appear to be attributable to streamline distance.
- TEQ concentrations are higher at undisturbed locations. This is particularly true within the 8-year Floodplain boundaries.
- TEQ concentrations are positively correlated with velocity, which is related to streamline distance and also was estimated using hydraulic simulations of 8-year flooding conditions.
- Although similar patterns and relationships with explanatory factors were observed in Areas 1 and 2, and preliminary data for Area 3 and the Confluence Area suggest that these relationships in these areas are similar to those in Areas 1 and 2, there were some differences between areas that do not appear to be solely attributable to the influencing factors.

Tables

Table F-1
 Soil Samples Used in Overall Nature and Extent Evaluation
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Location ID	Field Sample ID	Sampling Date	Matrix	Sample Depth	Within 100-year Floodplain?	Interval Assign	Rivermile	TEQ ¹ (ng/Kg)	Scoping Study Surface Soil
00DEQ-060	00DEQ-060-SOI-0070	5/16/2001	SOI	0.00-0.25 FT	Yes	Surface Soil	18.99	389.44	No
00DEQ-061	00DEQ-061-SOI-0071	5/16/2001	SOI	0.00-0.25 FT	Yes	Surface Soil	18.98	169.62	No
00DEQ-062	00DEQ-062-SOI-0072	5/16/2001	SOI	0.00-0.25 FT	Yes	Surface Soil	19.25	2567.73	No
00DEQ-063	00DEQ-063-SOI-0073	5/16/2001	SOI	0.00-0.25 FT	Yes	Surface Soil	19.22	2521.54	No
00DEQ-064	00DEQ-064-SOI-0079	5/16/2001	SOI	0.67-1.00 FT	Yes	Subsurface Soil	18.71	58.03	No
00DEQ-064	00DEQ-064-SOI-0074	5/16/2001	SOI	0.25-0.50 FT	Yes	Surface Soil	18.71	38.04	No
00DEQ-065	00DEQ-065-SOI-0080	5/16/2001	SOI	0.67-1.00 FT	Yes	Subsurface Soil	18.70	354.72	No
00DEQ-065	00DEQ-065-SOI-0075	5/16/2001	SOI	0.25-0.50 FT	Yes	Surface Soil	18.70	144.19	No
00DEQ-066	00DEQ-066-SOI-0081	5/16/2001	SOI	0.67-1.00 FT	Yes	Subsurface Soil	18.65	56.74	No
00DEQ-066	00DEQ-066-SOI-0076	5/16/2001	SOI	0.25-0.50 FT	Yes	Surface Soil	18.65	58.39	No
00DEQ-067	00DEQ-067-SOI-0082	5/16/2001	SOI	0.67-1.00 FT	Yes	Subsurface Soil	18.63	173.17	No
00DEQ-067	00DEQ-067-SOI-0077	5/16/2001	SOI	0.25-0.50 FT	Yes	Surface Soil	18.63	34.16	No
00DEQ-068	00DEQ-068-SOI-0083	5/16/2001	SOI	0.67-1.00 FT	Yes	Subsurface Soil	18.67	1052.18	No
00DEQ-068	00DEQ-068-SOI-0078	5/16/2001	SOI	0.25-0.50 FT	Yes	Surface Soil	18.67	139.72	No
00DEQ-069	00DEQ-069-SOI-0094	6/20/2001	SOI	1.00-1.25 FT	Yes	Subsurface Soil	18.79	57.69	No
00DEQ-069	00DEQ-069-SOI-0089	6/20/2001	SOI	0.25-0.50 FT	Yes	Surface Soil	18.79	589.40	No
00DEQ-069	00DEQ-069-SOI-0084	6/20/2001	SOI	0.00-0.25 FT	Yes	Surface Soil	18.79	386.33	No
00DEQ-070	00DEQ-070-SOI-0095	6/20/2001	SOI	1.00-1.25 FT	Yes	Subsurface Soil	18.80	313.41	No
00DEQ-070	00DEQ-070-SOI-0090	6/20/2001	SOI	0.25-0.50 FT	Yes	Surface Soil	18.80	423.90	No
00DEQ-070	00DEQ-070-SOI-0085	6/20/2001	SOI	0.00-0.25 FT	Yes	Surface Soil	18.80	763.47	No
00DEQ-071	00DEQ-071-SOI-0096	6/20/2001	SOI	1.00-1.25 FT	Yes	Subsurface Soil	18.81	272.13	No
00DEQ-071	00DEQ-071-SOI-0091	6/20/2001	SOI	0.25-0.50 FT	Yes	Surface Soil	18.81	538.06	No
00DEQ-071	00DEQ-071-SOI-0086	6/20/2001	SOI	0.00-0.25 FT	Yes	Surface Soil	18.81	388.62	No
00DEQ-072	00DEQ-072-SOI-0097	6/20/2001	SOI	1.00-1.25 FT	Yes	Subsurface Soil	18.81	125.57	No
00DEQ-072	00DEQ-072-SOI-0092	6/20/2001	SOI	0.25-0.50 FT	Yes	Surface Soil	18.81	551.63	No
00DEQ-072	00DEQ-072-SOI-0087	6/20/2001	SOI	0.00-0.25 FT	Yes	Surface Soil	18.81	580.71	No
00DEQ-073	00DEQ-073-SOI-0098	6/20/2001	SOI	1.00-1.25 FT	Yes	Subsurface Soil	18.80	67.56	No
00DEQ-073	00DEQ-073-SOI-0093	6/20/2001	SOI	0.25-0.50 FT	Yes	Surface Soil	18.80	664.30	No
00DEQ-073	00DEQ-073-SOI-0088	6/20/2001	SOI	0.00-0.25 FT	Yes	Surface Soil	18.80	442.50	No
01DEQ-043	01DEQ-043-SOI-0052	11/15/2001	SOI	0.00-0.06 FT	Yes	Surface Soil	20.51	440.63	No
01DEQ-045	01DEQ-045-SOI-0053	11/15/2001	SOI	0.00-0.06 FT	Yes	Surface Soil	19.08	1054.13	No
01DEQ-048	01DEQ-048-SOI-0056	10/4/2001	SOI	0.00-0.06 FT	Yes	Surface Soil	0.81	670.42	No
01DEQ-049	01DEQ-049-SOI-0057	10/4/2001	SOI	0.00-0.06 FT	Yes	Surface Soil	1.58	293.68	No
01DEQ-050	01DEQ-050-SOI-0058	10/4/2001	SOI	0.00-0.06 FT	Yes	Surface Soil	11.91	1254.38	No
01DEQ-051	01DEQ-051-SOI-0060	10/4/2001	SOI	0.00-0.06 FT	Yes	Surface Soil	17.33	923.97	No
01DEQ-052	01DEQ-052-SOI-0061	10/6/2001	SOI	0.00-0.06 FT	Yes	Surface Soil	18.70	1485.30	No
02DEQ1-074	02DEQ1-074-SOI-0102	5/15/2002	SOI	0.50-1.25 FT	Yes	Subsurface Soil	0.99	271.96	No
02DEQ1-074	02DEQ1-074-SOI-0101	5/15/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	0.99	144.37	No
02DEQ1-074	02DEQ1-074-SOI-0100	5/15/2002	SOI	0.08-0.25 FT	Yes	Surface Soil	0.99	142.77	No
02DEQ1-074	02DEQ1-074-SOI-0099	5/15/2002	SOI	0.00-0.08 FT	Yes	Surface Soil	0.99	36.15	No
02DEQ1-075	02DEQ1-075-SOI-0106	5/15/2002	SOI	0.50-1.25 FT	Yes	Subsurface Soil	1.02	209.53	No
02DEQ1-075	02DEQ1-075-SOI-0105	5/15/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	1.02	252.18	No
02DEQ1-075	02DEQ1-075-SOI-0104	5/15/2002	SOI	0.08-0.25 FT	Yes	Surface Soil	1.02	181.29	No
02DEQ1-075	02DEQ1-075-SOI-0103	5/15/2002	SOI	0.00-0.08 FT	Yes	Surface Soil	1.02	170.57	No
02DEQ1-078	02DEQ1-078-SOI-0115	5/10/2002	SOI	0.50-1.25 FT	Yes	Subsurface Soil	18.97	19.24	No
02DEQ1-078	02DEQ1-078-SOI-0114	5/10/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	18.97	20.43	No
02DEQ1-078	02DEQ1-078-SOI-0113	5/10/2002	SOI	0.00-0.25 FT	Yes	Surface Soil	18.97	19.02	No
02DEQ1-079	02DEQ1-079-SOI-0118	5/10/2002	SOI	0.50-1.25 FT	Yes	Subsurface Soil	18.97	6.84	No
02DEQ1-079	02DEQ1-079-SOI-0117	5/10/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	18.97	21.07	No
02DEQ1-079	02DEQ1-079-SOI-0116	5/10/2002	SOI	0.00-0.25 FT	Yes	Surface Soil	18.97	21.12	No
02DEQ1-080	02DEQ1-080-SOI-0121	5/10/2002	SOI	0.50-1.25 FT	Yes	Subsurface Soil	18.97	22.09	No
02DEQ1-080	02DEQ1-080-SOI-0120	5/10/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	18.97	30.15	No
02DEQ1-080	02DEQ1-080-SOI-0119	5/10/2002	SOI	0.00-0.25 FT	Yes	Surface Soil	18.97	48.25	No
02DEQ1-081	02DEQ1-081-SOI-0124	5/10/2002	SOI	0.50-1.25 FT	Yes	Subsurface Soil	18.97	1.91	No
02DEQ1-081	02DEQ1-081-SOI-0123	5/10/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	18.97	1.35	No
02DEQ1-081	02DEQ1-081-SOI-0122	5/10/2002	SOI	0.00-0.25 FT	Yes	Surface Soil	18.97	1.69	No
02DEQ1-082	02DEQ1-082-SOI-0127	5/10/2002	SOI	0.50-1.25 FT	Yes	Subsurface Soil	18.97	0.15	No
02DEQ1-082	02DEQ1-082-SOI-0126	5/10/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	18.97	0.94	No
02DEQ1-082	02DEQ1-082-SOI-0125	5/10/2002	SOI	0.00-0.25 FT	Yes	Surface Soil	18.97	0.52	No
02DEQ1-086	02DEQ1-086-SOI-0433	12/3/2002	SOI	4.00-5.00 FT	Yes	Subsurface Soil	5.60	12.12	No
02DEQ1-086	02DEQ1-086-SOI-0432	12/3/2002	SOI	3.00-4.00 FT	Yes	Subsurface Soil	5.60	64.28	No
02DEQ1-086	02DEQ1-086-SOI-0431	12/3/2002	SOI	2.00-3.00 FT	Yes	Subsurface Soil	5.60	132.93	No
02DEQ1-086	02DEQ1-086-SOI-0430	12/3/2002	SOI	1.25-2.00 FT	Yes	Subsurface Soil	5.60	1624.82	No
02DEQ1-086	02DEQ1-086-SOI-0143	5/23/2002	SOI	0.50-1.25 FT	Yes	Subsurface Soil	5.60	3355.33	No
02DEQ1-086	02DEQ1-086-SOI-0142	5/23/2002	SOI						

Table F-1
Soil Samples Used in Overall Nature and Extent Evaluation
Appendix F Furan and Dioxin Distribution in Floodplain Soil

Location ID	Field Sample ID	Sampling Date	Matrix	Sample Depth	Within 100-year Floodplain?	Interval Assign	Rivermile	TEQ ¹ (ng/Kg)	Scoping Study Surface Soil
02DEQ1-098	02DEQ1-098-SOI-0165	5/6/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	11.66	619.94	No
02DEQ1-098	02DEQ1-098-SOI-0164	5/6/2002	SOI	0.00-0.25 FT	Yes	Surface Soil	11.66	791.48	No
02DEQ1-099	02DEQ1-099-SOI-0169	5/6/2002	SOI	0.50-1.25 FT	Yes	Subsurface Soil	11.66	569.96	No
02DEQ1-099	02DEQ1-099-SOI-0168	5/6/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	11.66	1212.97	No
02DEQ1-099	02DEQ1-099-SOI-0167	5/6/2002	SOI	0.00-0.25 FT	Yes	Surface Soil	11.66	1139.34	No
02DEQ1-100	02DEQ1-100-SOI-0173	5/6/2002	SOI	0.50-1.25 FT	Yes	Subsurface Soil	11.65	1236.87	No
02DEQ1-100	02DEQ1-100-SOI-0172	5/6/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	11.65	1789.80	No
02DEQ1-100	02DEQ1-100-SOI-0171	5/6/2002	SOI	0.08-0.25 FT	Yes	Surface Soil	11.65	1573.54	No
02DEQ1-100	02DEQ1-100-SOI-0170	5/6/2002	SOI	0.00-0.08 FT	Yes	Surface Soil	11.65	1435.48	No
02DEQ1-101	02DEQ1-101-SOI-0177	5/6/2002	SOI	0.50-1.25 FT	Yes	Subsurface Soil	11.53	384.12	No
02DEQ1-101	02DEQ1-101-SOI-0176	5/6/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	11.53	1030.12	No
02DEQ1-101	02DEQ1-101-SOI-0175	5/6/2002	SOI	0.08-0.25 FT	Yes	Surface Soil	11.53	669.80	No
02DEQ1-101	02DEQ1-101-SOI-0174	5/6/2002	SOI	0.00-0.08 FT	Yes	Surface Soil	11.53	374.65	No
02DEQ1-102	02DEQ1-102-SOI-0179	5/6/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	11.55	625.12	No
02DEQ1-102	02DEQ1-102-SOI-0178	5/6/2002	SOI	0.00-0.25 FT	Yes	Surface Soil	11.55	234.03	No
02DEQ1-105	02DEQ1-105-SOI-0205	5/13/2002	SOI	0.50-1.25 FT	Yes	Subsurface Soil	6.74	0.69	No
02DEQ1-105	02DEQ1-105-SOI-0204	5/13/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	6.74	5.19	No
02DEQ1-105	02DEQ1-105-SOI-0203	5/13/2002	SOI	0.00-0.25 FT	Yes	Surface Soil	6.74	3.62	No
02DEQ1-106	02DEQ1-106-SOI-0208	5/13/2002	SOI	0.50-1.25 FT	Yes	Subsurface Soil	6.75	0.46	No
02DEQ1-106	02DEQ1-106-SOI-0207	5/13/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	6.75	1.03	No
02DEQ1-106	02DEQ1-106-SOI-0206	5/13/2002	SOI	0.00-0.25 FT	Yes	Surface Soil	6.75	3.32	No
02DEQ1-107	02DEQ1-107-SOI-0211	5/13/2002	SOI	0.50-1.25 FT	Yes	Subsurface Soil	6.76	2.00	No
02DEQ1-107	02DEQ1-107-SOI-0210	5/13/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	6.76	3.21	No
02DEQ1-107	02DEQ1-107-SOI-0209	5/13/2002	SOI	0.00-0.25 FT	Yes	Surface Soil	6.76	5.34	No
02DEQ1-108	02DEQ1-108-SOI-0214	5/13/2002	SOI	0.50-1.25 FT	Yes	Subsurface Soil	6.76	33.60	No
02DEQ1-108	02DEQ1-108-SOI-0213	5/13/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	6.76	28.56	No
02DEQ1-108	02DEQ1-108-SOI-0212	5/13/2002	SOI	0.00-0.25 FT	Yes	Surface Soil	6.76	22.36	No
02DEQ1-109	02DEQ1-109-SOI-0217	5/10/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	19.03	0.57	No
02DEQ1-109	02DEQ1-109-SOI-0216	5/10/2002	SOI	0.08-0.25 FT	Yes	Surface Soil	19.03	0.78	No
02DEQ1-109	02DEQ1-109-SOI-0215	5/10/2002	SOI	0.00-0.08 FT	Yes	Surface Soil	19.03	0.97	No
02DEQ1-114	02DEQ1-114-SOI-0228	5/8/2002	SOI	0.50-1.25 FT	Yes	Subsurface Soil	20.29	936.34	No
02DEQ1-114	02DEQ1-114-SOI-0227	5/8/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	20.29	530.77	No
02DEQ1-114	02DEQ1-114-SOI-0226	5/8/2002	SOI	0.00-0.25 FT	Yes	Surface Soil	20.29	774.58	No
02DEQ1-115	02DEQ1-115-SOI-0231	5/8/2002	SOI	0.50-1.25 FT	Yes	Subsurface Soil	20.29	141.75	No
02DEQ1-115	02DEQ1-115-SOI-0230	5/8/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	20.29	100.42	No
02DEQ1-115	02DEQ1-115-SOI-0229	5/8/2002	SOI	0.00-0.25 FT	Yes	Surface Soil	20.29	238.32	No
02DEQ1-116	02DEQ1-116-SOI-0234	5/8/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	20.30	1370.68	No
02DEQ1-116	02DEQ1-116-SOI-0233	5/8/2002	SOI	0.08-0.25 FT	Yes	Surface Soil	20.30	1063.38	No
02DEQ1-116	02DEQ1-116-SOI-0232	5/8/2002	SOI	0.00-0.08 FT	Yes	Surface Soil	20.30	449.29	No
02DEQ1-117	02DEQ1-117-SOI-0235	5/8/2002	SOI	0.00-0.08 FT	Yes	Surface Soil	20.30	44.93	No
02DEQ1-118	02DEQ1-118-SOI-0236	5/8/2002	SOI	0.00-0.08 FT	Yes	Surface Soil	20.30	80.85	No
02DEQ1-119	02DEQ1-119-SOI-0240	5/21/2002	SOI	0.50-1.25 FT	Yes	Subsurface Soil	17.32	447.07	No
02DEQ1-119	02DEQ1-119-SOI-0239	5/21/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	17.32	351.32	No
02DEQ1-119	02DEQ1-119-SOI-0238	5/21/2002	SOI	0.08-0.25 FT	Yes	Surface Soil	17.32	268.15	No
02DEQ1-119	02DEQ1-119-SOI-0237	5/1/2001	SOI	0.00-0.08 FT	Yes	Surface Soil	17.32	459.23	No
02DEQ1-120	02DEQ1-120-SOI-0244	5/21/2002	SOI	0.50-1.25 FT	Yes	Subsurface Soil	17.29	336.46	No
02DEQ1-120	02DEQ1-120-SOI-0243	5/21/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	17.29	671.03	No
02DEQ1-120	02DEQ1-120-SOI-0242	5/21/2002	SOI	0.08-0.25 FT	Yes	Surface Soil	17.29	421.44	No
02DEQ1-120	02DEQ1-120-SOI-0241	5/1/2001	SOI	0.00-0.08 FT	Yes	Surface Soil	17.29	507.06	No
02DEQ1-121	02DEQ1-121-SOI-0248	5/21/2002	SOI	0.50-1.25 FT	Yes	Subsurface Soil	17.24	139.87	No
02DEQ1-121	02DEQ1-121-SOI-0247	5/21/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	17.24	537.09	No
02DEQ1-121	02DEQ1-121-SOI-0246	5/21/2002	SOI	0.08-0.25 FT	Yes	Surface Soil	17.24	540.06	No
02DEQ1-121	02DEQ1-121-SOI-0245	5/1/2001	SOI	0.00-0.08 FT	Yes	Surface Soil	17.24	269.51	No
02DEQ1-125	02DEQ1-125-SOI-0262	8/6/2002	SOI	0.50-1.25 FT	Yes	Subsurface Soil	16.32	0.80	No
02DEQ1-125	02DEQ1-125-SOI-0261	8/6/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	16.32	1.79	No
02DEQ1-125	02DEQ1-125-SOI-0260	8/6/2002	SOI	0.08-0.25 FT	Yes	Surface Soil	16.32	4.47	No
02DEQ1-125	02DEQ1-125-SOI-0259	8/6/2002	SOI	0.00-0.08 FT	Yes	Surface Soil	16.32	3.88	No
02DEQ1-126	02DEQ1-126-SOI-0266	8/6/2002	SOI	0.50-1.25 FT	Yes	Subsurface Soil	16.31	0.28	No
02DEQ1-126	02DEQ1-126-SOI-0265	8/6/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	16.31	0.74	No
02DEQ1-126	02DEQ1-126-SOI-0264	8/6/2002	SOI	0.08-0.25 FT	Yes	Surface Soil	16.31	2.94	No
02DEQ1-126	02DEQ1-126-SOI-0263	8/6/2002	SOI	0.00-0.08 FT	Yes	Surface Soil	16.31	3.86	No
02DEQ1-127	02DEQ1-127-SOI-0270	8/6/2002	SOI	0.50-1.25 FT	Yes	Subsurface Soil	16.31	0.89	No
02DEQ1-127	02DEQ1-127-SOI-0269	8/6/2002	SOI	0.25-0.50 FT	Yes	Surface Soil	16.31	3.13	No
02DEQ1-127	02DEQ1-127-SOI-0268	8/6/2002	SOI	0.08-0.25 FT	Yes	Surface Soil	16.31	4.38	No
02DEQ1-127	02DEQ1-127-SOI-0267	8/6/2002							

Table F-1
 Soil Samples Used in Overall Nature and Extent Evaluation
 Appendix F Furan and Dioxin Distribution in Floodplain Soil

Location ID	Field Sample ID	Sampling Date	Matrix	Sample Depth	Within 100-year Floodplain?	Interval Assign	Rivermile	TEQ ¹ (ng/Kg)	Scoping Study Surface Soil
03DEQ-569	03DEQ-569-SOI-1054	12/10/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	14.89	408.20	No
03DEQ-570	03DEQ-570-SOI-1061	12/10/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	14.89	1235.58	No
03DEQ-570	03DEQ-570-SOI-1060	12/10/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	14.89	952.21	No
03DEQ-570	03DEQ-570-SOI-1059	12/10/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	14.89	5662.40	No
03DEQ-570	03DEQ-570-SOI-1058	12/10/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	14.89	2535.87	No
03DEQ-571	03DEQ-571-SOI-1247	12/10/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	14.89	438.59	No
03DEQ-571	03DEQ-571-SOI-1064	12/10/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	14.89	1421.85	No
03DEQ-571	03DEQ-571-SOI-1063	12/10/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	14.89	359.75	No
03DEQ-571	03DEQ-571-SOI-1062	12/10/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	14.89	1125.56	No
03DEQ-572	03DEQ-572-SOI-1068	12/10/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	14.34	10.52	No
03DEQ-572	03DEQ-572-SOI-1067	12/10/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	14.34	6.90	No
03DEQ-572	03DEQ-572-SOI-1066	12/10/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	14.34	92.18	No
03DEQ-572	03DEQ-572-SOI-1065	12/10/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	14.34	58.52	No
03DEQ-573	03DEQ-573-SOI-1248	12/10/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	14.34	7.57	No
03DEQ-573	03DEQ-573-SOI-1071	12/10/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	14.34	7.11	No
03DEQ-573	03DEQ-573-SOI-1070	12/10/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	14.34	17.34	No
03DEQ-573	03DEQ-573-SOI-1069	12/10/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	14.34	4.20	No
03DEQ-576	03DEQ-576-SOI-1083	12/10/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	14.34	61.63	No
03DEQ-576	03DEQ-576-SOI-1082	12/10/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	14.34	48.52	No
03DEQ-576	03DEQ-576-SOI-1081	12/10/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	14.34	9.73	No
03DEQ-576	03DEQ-576-SOI-1080	12/10/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	14.34	22.26	No
03DEQ-577	03DEQ-577-SOI-1087	10/16/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	14.21	4.79	No
03DEQ-577	03DEQ-577-SOI-1086	10/16/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	14.21	0.39	No
03DEQ-577	03DEQ-577-SOI-1085	10/16/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	14.21	2.93	No
03DEQ-577	03DEQ-577-SOI-1084	10/16/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	14.21	0.31	No
03DEQ-578	03DEQ-578-SOI-1091	10/16/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	14.25	109.94	No
03DEQ-578	03DEQ-578-SOI-1090	10/16/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	14.25	124.04	No
03DEQ-578	03DEQ-578-SOI-1089	10/16/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	14.25	17.74	No
03DEQ-578	03DEQ-578-SOI-1088	10/16/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	14.25	79.39	No
03DEQ-579*	03DEQ-579-SOI-1093	10/16/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	14.25	193.68	No
03DEQ-579*	03DEQ-579-SOI-1092	10/16/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	14.25	153.21	No
03DEQ-580	03DEQ-580-SOI-1097	10/16/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	14.23	894.34	No
03DEQ-580	03DEQ-580-SOI-1096	10/16/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	14.23	651.03	No
03DEQ-580	03DEQ-580-SOI-1095	10/16/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	14.23	1567.68	No
03DEQ-580	03DEQ-580-SOI-1094	10/16/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	14.23	401.84	No
03DEQ-581	03DEQ-581-SOI-1101	11/24/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	13.29	240.16	No
03DEQ-581	03DEQ-581-SOI-1100	11/24/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	13.29	222.97	No
03DEQ-581	03DEQ-581-SOI-1099	11/24/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	13.29	41.85	No
03DEQ-581	03DEQ-581-SOI-1098	11/24/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	13.29	77.09	No
03DEQ-582	03DEQ-582-SOI-1105	11/24/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	13.29	157.69	No
03DEQ-582	03DEQ-582-SOI-1104	11/24/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	13.29	66.54	No
03DEQ-582	03DEQ-582-SOI-1103	11/24/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	13.29	64.89	No
03DEQ-582	03DEQ-582-SOI-1102	11/24/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	13.29	69.07	No
03DEQ-583	03DEQ-583-SOI-1106	12/1/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	15.97	82.72	No
03DEQ-584	03DEQ-584-SOI-1107	12/1/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	15.96	88.10	No
03DEQ-585	03DEQ-585-SOI-1108	12/1/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	15.95	234.91	No
03DEQ-586	03DEQ-586-SOI-1109	11/24/2003	SOI	0.00-0.08 FT	No	Surface Soil	0.09	1111.79	No
03DEQ-587	03DEQ-587-SOI-1113	11/24/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	12.53	3.74	No
03DEQ-587	03DEQ-587-SOI-1112	11/24/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	12.53	4.32	No
03DEQ-587	03DEQ-587-SOI-1111	11/24/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	12.53	1.39	No
03DEQ-587	03DEQ-587-SOI-1110	11/24/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	12.53	3.83	No
03DEQ-588	03DEQ-588-SOI-1117	11/24/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	12.53	214.44	No
03DEQ-588	03DEQ-588-SOI-1116	11/24/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	12.53	243.59	No
03DEQ-588	03DEQ-588-SOI-1115	11/24/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	12.53	28.83	No
03DEQ-588	03DEQ-588-SOI-1114	11/24/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	12.53	404.68	No
03DEQ-589	03DEQ-589-SOI-1118	11/24/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	12.52	4.65	No
03DEQ-590	03DEQ-590-SOI-1121	7/31/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	12.18	100.98	No
03DEQ-590	03DEQ-590-SOI-1120	7/31/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	12.18	45.34	No
03DEQ-590	03DEQ-590-SOI-1119	7/31/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	12.18	50.90	No
03DEQ-591	03DEQ-591-SOI-1124	7/31/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	12.17	324.95	No
03DEQ-591	03DEQ-591-SOI-1123	7/31/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	12.17	301.84	No
03DEQ-591	03DEQ-591-SOI-1122	7/31/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	12.17	410.63	No
03DEQ-592	03DEQ-592-SOI-1126	7/31/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	12.20	327.99	No
03DEQ-592	03DEQ-592-SOI-1125	7/31/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	12.20	265.90	No
03DEQ-593	03DEQ-593-SOI-1127	11/21/2003	SOI	0.00-0.08 FT	Yes				

Table F-1
 Soil Samples Used in Overall Nature and Extent Evaluation
 Appendix F Furan and Dioxin Distribution in Floodplain Soil

Location ID	Field Sample ID	Sampling Date	Matrix	Sample Depth	Within 100-year Floodplain?	Interval Assign	Rivermile	TEQ ¹ (ng/Kg)	Scoping Study Surface Soil
03DEQ-604	03DEQ-604-SOI-1150	11/26/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	17.46	156.66	No
03DEQ-604	03DEQ-604-SOI-1149	11/26/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	17.46	10.36	No
03DEQ-604	03DEQ-604-SOI-1148	11/26/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	17.46	94.62	No
03DEQ-605	03DEQ-605-SOI-1154	11/26/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	17.46	94.47	No
03DEQ-605	03DEQ-605-SOI-1153	11/26/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	17.46	121.00	No
03DEQ-605	03DEQ-605-SOI-1152	11/26/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	17.46	52.58	No
03DEQ-609	03DEQ-609-SOI-1160	12/1/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	17.64	45.23	No
03DEQ-610	03DEQ-610-SOI-1164	12/1/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	17.59	102.30	No
03DEQ-610	03DEQ-610-SOI-1163	12/1/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	17.59	83.01	No
03DEQ-610	03DEQ-610-SOI-1162	12/1/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	17.59	14.63	No
03DEQ-610	03DEQ-610-SOI-1161	12/1/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	17.59	54.23	No
03DEQ-611	03DEQ-611-SOI-1249	12/1/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	17.58	62.71	No
03DEQ-611	03DEQ-611-SOI-1166	12/1/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	17.58	26.86	No
03DEQ-611	03DEQ-611-SOI-1165	12/1/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	17.58	62.10	No
03DEQ-612	03DEQ-612-SOI-1170	12/1/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	17.58	112.64	No
03DEQ-612	03DEQ-612-SOI-1169	12/1/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	17.58	93.16	No
03DEQ-612	03DEQ-612-SOI-1168	12/1/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	17.58	58.17	No
03DEQ-612	03DEQ-612-SOI-1167	12/1/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	17.58	100.22	No
03DEQ-613	03DEQ-613-SOI-1174	7/31/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	8.44	1127.99	No
03DEQ-613	03DEQ-613-SOI-1173	7/31/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	8.44	821.28	No
03DEQ-613	03DEQ-613-SOI-1172	7/31/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	8.44	1029.16	No
03DEQ-613	03DEQ-613-SOI-1171	7/31/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	8.44	812.29	No
03DEQ-614	03DEQ-614-SOI-1178	7/31/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	8.43	13.87	No
03DEQ-614	03DEQ-614-SOI-1177	7/31/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	8.43	19.61	No
03DEQ-614	03DEQ-614-SOI-1176	7/31/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	8.43	65.91	No
03DEQ-614	03DEQ-614-SOI-1175	7/31/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	8.43	25.44	No
03DEQ-617	03DEQ-617-SOI-1183	12/1/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	16.95	15.77	No
03DEQ-618	03DEQ-618-SOI-1186	12/1/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	16.95	2.13	No
03DEQ-618	03DEQ-618-SOI-1185	12/1/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	16.95	1.56	No
03DEQ-618	03DEQ-618-SOI-1184	12/1/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	16.95	0.66	No
03DEQ-619	03DEQ-619-SOI-1189	12/1/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	16.96	3.19	No
03DEQ-619	03DEQ-619-SOI-1188	12/1/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	16.96	2.72	No
03DEQ-619	03DEQ-619-SOI-1187	12/1/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	16.96	2.99	No
03DEQ-620	03DEQ-620-SOI-1190	12/1/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	15.64	259.88	No
03DEQ-621	03DEQ-621-SOI-1194	12/10/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	15.63	371.60	No
03DEQ-621	03DEQ-621-SOI-1193	12/10/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	15.63	378.63	No
03DEQ-621	03DEQ-621-SOI-1192	12/10/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	15.63	630.32	No
03DEQ-621	03DEQ-621-SOI-1191	12/1/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	15.63	271.29	No
03DEQ-622	03DEQ-622-SOI-1198	12/10/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	15.66	1011.30	No
03DEQ-622	03DEQ-622-SOI-1197	12/10/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	15.66	1969.54	No
03DEQ-622	03DEQ-622-SOI-1196	12/10/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	15.66	183.93	No
03DEQ-622	03DEQ-622-SOI-1195	12/1/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	15.66	308.12	No
03DEQ-623	03DEQ-623-SOI-1202	12/9/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	15.09	15.38	No
03DEQ-623	03DEQ-623-SOI-1201	12/9/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	15.09	9.14	No
03DEQ-623	03DEQ-623-SOI-1200	12/9/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	15.09	1.40	No
03DEQ-623	03DEQ-623-SOI-1199	12/9/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	15.09	10.09	No
03DEQ-624	03DEQ-624-SOI-1206	12/9/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	15.09	4.83	No
03DEQ-624	03DEQ-624-SOI-1205	12/9/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	15.09	3.95	No
03DEQ-624	03DEQ-624-SOI-1204	12/9/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	15.09	0.21	No
03DEQ-624	03DEQ-624-SOI-1203	12/9/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	15.09	0.78	No
03DEQ-625	03DEQ-625-SOI-1210	12/9/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	15.09	4.51	No
03DEQ-625	03DEQ-625-SOI-1209	12/9/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	15.09	7.95	No
03DEQ-625	03DEQ-625-SOI-1208	12/9/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	15.09	250.68	No
03DEQ-625	03DEQ-625-SOI-1207	12/9/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	15.09	56.13	No
03DEQ-626	03DEQ-626-SOI-1214	7/18/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	3.48	27.97	No
03DEQ-626	03DEQ-626-SOI-1213	7/18/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	3.48	18.25	No
03DEQ-626	03DEQ-626-SOI-1212	7/18/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	3.48	50.33	No
03DEQ-626	03DEQ-626-SOI-1211	7/18/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	3.48	15.03	No
03DEQ-627	03DEQ-627-SOI-1218	7/18/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	3.48	7.44	No
03DEQ-627	03DEQ-627-SOI-1217	7/18/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	3.48	3.45	No
03DEQ-627	03DEQ-627-SOI-1216	7/18/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	3.48	7.44	No
03DEQ-627	03DEQ-627-SOI-1215	7/18/2003	SOI	0.00-0.08 FT	Yes	Surface Soil	3.48	45.25	No
03DEQ-628	03DEQ-628-SOI-1222	7/18/2003	SOI	0.25-0.50 FT	Yes	Surface Soil	3.47	26.53	No
03DEQ-628	03DEQ-628-SOI-1221	7/18/2003	SOI	0.08-0.25 FT	Yes	Surface Soil	3.47	19.64	No
03DEQ-628	03DEQ-628-SOI-1220	7/18/2003	SOI	0.50-1.25 FT	Yes	Subsurface Soil	3.47	16.02	No
03DEQ-628	03DEQ-628-SOI-1219	7/18							

Table F-1
 Soil Samples Used in Overall Nature and Extent Evaluation
 Appendix F Furan and Dioxin Distribution in Floodplain Soil

Location ID	Field Sample ID	Sampling Date	Matrix	Sample Depth	Within 100-year Floodplain?	Interval Assign	Rivermile	TEQ ¹ (ng/Kg)	Scoping Study Surface Soil
FRE-04754	062805-SOI-04754-00.50	6/28/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	2.59	166.39	Yes
FRE-04755	071205-SOI-04755-03.00	7/12/2005	SOI	2.5-3.00 FT	Yes	Subsurface Soil	2.91	0.32	No
FRE-04755	071205-SOI-04755-02.50	7/12/2005	SOI	2.0-2.50 FT	Yes	Subsurface Soil	2.91	0.77	No
FRE-04755	071205-SOI-04755-02.00	7/12/2005	SOI	1.5-2.00 FT	Yes	Subsurface Soil	2.91	1.88	No
FRE-04755	071205-SOI-04755-01.50	7/12/2005	SOI	1.0-1.50 FT	Yes	Subsurface Soil	2.91	37.94	No
FRE-04755	071205-SOI-04755-01.00	7/12/2005	SOI	0.5-1.00 FT	Yes	Subsurface Soil	2.91	175.21	No
FRE-04755	062805-SOI-04755-00.50	6/28/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	2.91	250.99	Yes
FRE-04760	071305-SOI-04760-09.00	7/13/2005	SOI	8.0-9.00 FT	Yes	Subsurface Soil	2.89	0.48	No
FRE-04760	071305-SOI-04760-08.00	7/13/2005	SOI	7.0-8.00 FT	Yes	Subsurface Soil	2.89	4.35	No
FRE-04760	071305-SOI-04760-07.00	7/13/2005	SOI	6.0-7.00 FT	Yes	Subsurface Soil	2.89	102.73	No
FRE-04760	071305-SOI-04760-06.00	7/13/2005	SOI	5.0-6.00 FT	Yes	Subsurface Soil	2.89	12471.80	No
FRE-04760	071305-SOI-04760-05.00	7/13/2005	SOI	4.0-5.00 FT	Yes	Subsurface Soil	2.89	14283.60	No
FRE-04760	071305-SOI-04760-04.00	7/13/2005	SOI	3.0-4.00 FT	Yes	Subsurface Soil	2.89	23326.30	No
FRE-04760	071305-SOI-04760-03.00	7/13/2005	SOI	2.5-3.00 FT	Yes	Subsurface Soil	2.89	21621.60	No
FRE-04760	071305-SOI-04760-02.50	7/13/2005	SOI	2.0-2.50 FT	Yes	Subsurface Soil	2.89	11194.70	No
FRE-04760	071305-SOI-04760-02.00	7/13/2005	SOI	1.5-2.00 FT	Yes	Subsurface Soil	2.89	3172.49	No
FRE-04760	071305-SOI-04760-01.50	7/13/2005	SOI	1.0-1.50 FT	Yes	Subsurface Soil	2.89	5062.51	No
FRE-04760	071305-SOI-04760-01.00	7/13/2005	SOI	0.5-1.00 FT	Yes	Subsurface Soil	2.89	2948.97	No
FRE-04760	062805-SOI-04760-00.50	6/28/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	2.89	1075.91	Yes
FRE-04761	071405-SOI-04761-03.00	7/14/2005	SOI	2.5-3.00 FT	Yes	Subsurface Soil	2.96	10.50	No
FRE-04761	071405-SOI-04761-02.50	7/14/2005	SOI	2.0-2.50 FT	Yes	Subsurface Soil	2.96	3.52	No
FRE-04761	071405-SOI-04761-02.00	7/14/2005	SOI	1.5-2.00 FT	Yes	Subsurface Soil	2.96	7.82	No
FRE-04761	071405-SOI-04761-01.50	7/14/2005	SOI	1.0-1.50 FT	Yes	Subsurface Soil	2.96	12.31	No
FRE-04761	071405-SOI-04761-01.00	7/14/2005	SOI	0.5-1.00 FT	Yes	Subsurface Soil	2.96	705.44	No
FRE-04761	071305-SOI-04761-06.00	7/13/2005	SOI	5.0-6.00 FT	Yes	Subsurface Soil	2.96	3.55	No
FRE-04761	071305-SOI-04761-05.00	7/13/2005	SOI	4.0-5.00 FT	Yes	Subsurface Soil	2.96	0.78	No
FRE-04761	071305-SOI-04761-04.00	7/13/2005	SOI	3.0-4.00 FT	Yes	Subsurface Soil	2.96	3.30	No
FRE-04761	062705-SOI-04761-00.50	6/27/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	2.96	729.23	Yes
FRE-04762	062705-SOI-04762-00.50	6/27/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	2.73	59.43	Yes
FRE-04765	062805-SOI-04765-00.50	6/28/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	2.97	388.98	Yes
FRE-04766	071205-SOI-04766-03.00	7/12/2005	SOI	2.5-3.00 FT	Yes	Subsurface Soil	2.91	1.11	No
FRE-04766	071205-SOI-04766-02.50	7/12/2005	SOI	2.0-2.50 FT	Yes	Subsurface Soil	2.91	1.01	No
FRE-04766	071205-SOI-04766-02.00	7/12/2005	SOI	1.5-2.00 FT	Yes	Subsurface Soil	2.91	2.28	No
FRE-04766	071205-SOI-04766-01.50	7/12/2005	SOI	1.0-1.50 FT	Yes	Subsurface Soil	2.91	30.74	No
FRE-04766	071205-SOI-04766-01.00	7/12/2005	SOI	0.5-1.00 FT	Yes	Subsurface Soil	2.91	226.19	No
FRE-04766	062805-SOI-04766-00.50	6/28/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	2.91	191.61	Yes
FRE-04767	062705-SOI-04767-00.50	6/27/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	2.75	235.07	Yes
FRE-04768	062805-SOI-04768-00.50	6/28/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	2.89	1373.28	Yes
FRE-04769	062805-SOI-04769-00.50	6/28/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	3.02	420.60	Yes
FRE-04770	070605-SOI-04770-03.00	7/6/2005	SOI	2.5-3.00 FT	Yes	Subsurface Soil	2.90	0.89	No
FRE-04770	070605-SOI-04770-02.50	7/6/2005	SOI	2.0-2.50 FT	Yes	Subsurface Soil	2.90	0.88	No
FRE-04770	070605-SOI-04770-02.00	7/6/2005	SOI	1.5-2.00 FT	Yes	Subsurface Soil	2.90	0.85	No
FRE-04770	070605-SOI-04770-01.50	7/6/2005	SOI	1.0-1.50 FT	Yes	Subsurface Soil	2.90	2.98	No
FRE-04770	070605-SOI-04770-01.00	7/6/2005	SOI	0.5-1.00 FT	Yes	Subsurface Soil	2.90	69.16	No
FRE-04770	062805-SOI-04770-00.50	6/28/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	2.90	129.23	Yes
FRE-04772	062705-SOI-04772-00.50	6/27/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	3.03	1008.79	Yes
FRE-04773	062705-SOI-04773-00.50	6/27/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	3.10	437.25	Yes
FRE-04775	062705-SOI-04775-00.50	6/27/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	2.97	208.16	Yes
FRE-04777	062905-SOI-04777-00.50	6/29/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	2.97	240.85	Yes
FRE-04808	062705-SOI-04808-00.50	6/27/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	2.96	1713.31	Yes
FRE-04935	062805-SOI-04935-00.50	6/28/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.41	13.17	Yes
FRE-04936	062905-SOI-04936-00.50	6/29/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.43	28.33	Yes
FRE-04937	062805-SOI-04937-00.50	6/28/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.47	102.37	Yes
FRE-04938	062805-SOI-04938-00.50	6/28/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.44	30.06	Yes
FRE-04939	062805-SOI-04939-00.50	6/28/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.43	7.62	Yes
FRE-04940	080105-SOI-04940-00.50	8/1/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.40	26.01	Yes
FRE-04941	080105-SOI-04941-00.50	8/1/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.36	27.35	Yes
FRE-04942	062805-SOI-04942-00.50	6/28/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.41	2.25	Yes
FRE-04981	071105-SOI-04981-03.00	7/11/2005	SOI	2.5-3.00 FT	Yes	Subsurface Soil	2.89	2.84	No
FRE-04981	071105-SOI-04981-02.50	7/11/2005	SOI	2.0-2.50 FT	Yes	Subsurface Soil	2.89	1.47	No
FRE-04981	071105-SOI-04981-02.00	7/11/2005	SOI	1.5-2.00 FT	Yes	Subsurface Soil	2.89	9.41	No
FRE-04981	071105-SOI-04981-01.50	7/11/2005	SOI	1.0-1.50 FT	Yes	Subsurface Soil	2.89	428.09	No
FRE-04981	071105-SOI-04981-01.00	7/11/2005	SOI	0.5-1.00 FT	Yes	Subsurface Soil	2.89	805.96	No
FRE-04981	062805-SOI-04981-00.50	6/28/2005	SOI	0.0-0.50 FT	Yes				

Table F-1
 Soil Samples Used in Overall Nature and Extent Evaluation
 Appendix F Furan and Dioxin Distribution in Floodplain Soil

Location ID	Field Sample ID	Sampling Date	Matrix	Sample Depth	Within 100-year Floodplain?	Interval Assign	Rivermile	TEQ ¹ (ng/Kg)	Scoping Study Surface Soil
MIC-04882	071905-SOI-04882-02.00	7/19/2005	SOI	1.5-2.00 FT	Yes	Subsurface Soil	2.88	1847.38	No
MIC-04882	071905-SOI-04882-01.50	7/19/2005	SOI	1.0-1.50 FT	Yes	Subsurface Soil	2.88	1973.64	No
MIC-04882	071905-SOI-04882-01.00	7/19/2005	SOI	0.5-1.00 FT	Yes	Subsurface Soil	2.88	1131.04	No
MIC-04882	071905-SOI-04882-00.50	7/19/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	2.88	1345.40	Yes
MIC-04903	062805-SOI-04903-00.50	6/28/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	2.44	8674.10	Yes
MIC-04943	062805-SOI-04943-00.50	6/28/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.38	19.25	Yes
MIC-04944	062805-SOI-04944-00.50	6/28/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.39	15.69	Yes
MIC-04945	062805-SOI-04945-00.50	6/28/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.40	31.25	Yes
MIC-04946	071905-SOI-04946-00.50	7/19/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.10	8.47	Yes
MIC-04947	080205-SOI-04947-00.50	8/2/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.09	5.87	Yes
MIC-04948	080205-SOI-04948-00.50	8/2/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.25	7.80	Yes
MIC-04949	080505-SOI-04949-00.50	8/5/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.21	13.06	Yes
MIC-04950	080205-SOI-04950-00.50	8/2/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.24	5.43	Yes
MSE-03150	120704-SOI-03150-03.00A	12/7/2004	SOI	2.5-3.00 FT	No	Subsurface Soil	0.11	2.51	No
MSE-03150	120704-SOI-03150-02.50A	12/7/2004	SOI	2.0-2.50 FT	No	Subsurface Soil	0.11	0.43	No
MSE-03150	120704-SOI-03150-02.00A	12/7/2004	SOI	1.5-2.00 FT	No	Subsurface Soil	0.11	10.24	No
MSE-03150	120704-SOI-03150-01.50A	12/7/2004	SOI	1.0-1.50 FT	No	Subsurface Soil	0.11	21.02	No
MSE-03150	120704-SOI-03150-01.00A	12/7/2004	SOI	0.5-1.00 FT	No	Subsurface Soil	0.11	222.88	No
MSE-03150	120704-SOI-03150-00.50A	12/7/2004	SOI	0.0-0.50 FT	No	Surface Soil	0.11	752.39	No
MSE-03151	120804-SOI-03151-03.00A	12/8/2004	SOI	2.5-3.00 FT	No	Subsurface Soil	0.05	0.25	No
MSE-03151	120804-SOI-03151-02.50A	12/8/2004	SOI	2.0-2.50 FT	No	Subsurface Soil	0.05	1.84	No
MSE-03151	120804-SOI-03151-02.00A	12/8/2004	SOI	1.5-2.00 FT	No	Subsurface Soil	0.05	2.01	No
MSE-03151	120804-SOI-03151-01.50A	12/8/2004	SOI	1.0-1.50 FT	No	Subsurface Soil	0.05	0.85	No
MSE-03151	120804-SOI-03151-01.00A	12/8/2004	SOI	0.5-1.00 FT	No	Subsurface Soil	0.05	10.15	No
MSE-03151	120804-SOI-03151-00.50A	12/8/2004	SOI	0.0-0.50 FT	No	Surface Soil	0.05	628.44	No
MSE-03152	120804-SOI-03152-08.00A	12/8/2004	SOI	7.0-8.00 FT	No	Subsurface Soil	0.04	0.16	No
MSE-03152	120804-SOI-03152-07.00A	12/8/2004	SOI	6.0-7.00 FT	No	Subsurface Soil	0.04	0.41	No
MSE-03152	120804-SOI-03152-06.00A	12/8/2004	SOI	5.0-6.00 FT	No	Subsurface Soil	0.04	559.25	No
MSE-03152	120804-SOI-03152-03.00A	12/8/2004	SOI	2.5-3.00 FT	No	Subsurface Soil	0.04	1.32	No
MSE-03152	120804-SOI-03152-02.50A	12/8/2004	SOI	2.0-2.50 FT	No	Subsurface Soil	0.04	28.70	No
MSE-03152	120804-SOI-03152-02.00A	12/8/2004	SOI	1.5-2.00 FT	No	Subsurface Soil	0.04	2.61	No
MSE-03152	120804-SOI-03152-01.50A	12/8/2004	SOI	1.0-1.50 FT	No	Subsurface Soil	0.04	64.08	No
MSE-03152	120804-SOI-03152-01.00A	12/8/2004	SOI	0.5-1.00 FT	No	Subsurface Soil	0.04	3289.08	No
MSE-03152	120804-SOI-03152-00.50A	12/8/2004	SOI	0.0-0.50 FT	No	Surface Soil	0.04	3185.12	No
MSE-03153	120704-SOI-03153-03.00A	12/7/2004	SOI	2.5-3.00 FT	No	Subsurface Soil	0.06	0.24	No
MSE-03153	120704-SOI-03153-02.50A	12/7/2004	SOI	2.0-2.50 FT	No	Subsurface Soil	0.06	0.24	No
MSE-03153	120704-SOI-03153-02.00A	12/7/2004	SOI	1.5-2.00 FT	No	Subsurface Soil	0.06	0.46	No
MSE-03153	120704-SOI-03153-01.50A	12/7/2004	SOI	1.0-1.50 FT	No	Subsurface Soil	0.06	3.32	No
MSE-03153	120704-SOI-03153-01.00A	12/7/2004	SOI	0.5-1.00 FT	No	Subsurface Soil	0.06	34.66	No
MSE-03153	120704-SOI-03153-00.50A	12/7/2004	SOI	0.0-0.50 FT	No	Surface Soil	0.06	532.38	No
MSE-03154	120804-SOI-03154-02.00A	12/8/2004	SOI	1.5-2.00 FT	No	Subsurface Soil	0.15	0.44	No
MSE-03154	120804-SOI-03154-01.50A	12/8/2004	SOI	1.0-1.50 FT	No	Subsurface Soil	0.15	0.22	No
MSE-03154	120804-SOI-03154-01.00A	12/8/2004	SOI	0.5-1.00 FT	No	Subsurface Soil	0.15	0.89	No
MSE-03154	120804-SOI-03154-00.50A	12/8/2004	SOI	0.0-0.50 FT	No	Surface Soil	0.15	45.26	No
SHI-04776	072705-SOI-04776-00.50	7/27/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	18.76	10.18	Yes
SHI-04820	072605-SOI-04820-03.00	7/26/2005	SOI	2.5-3.00 FT	Yes	Subsurface Soil	18.77	0.74	No
SHI-04820	072605-SOI-04820-02.50	7/26/2005	SOI	2.0-2.50 FT	Yes	Subsurface Soil	18.77	1.28	No
SHI-04820	072605-SOI-04820-02.00	7/26/2005	SOI	1.5-2.00 FT	Yes	Subsurface Soil	18.77	1.84	No
SHI-04820	072605-SOI-04820-01.50	7/26/2005	SOI	1.0-1.50 FT	Yes	Subsurface Soil	18.77	1.24	No
SHI-04820	072605-SOI-04820-01.00	7/26/2005	SOI	0.5-1.00 FT	Yes	Subsurface Soil	18.77	6.43	No
SHI-04845	072605-SOI-04845-10.00	7/26/2005	SOI	9.0-10.00 FT	Yes	Subsurface Soil	18.77	1.38	No
SHI-04845	072605-SOI-04845-09.00	7/26/2005	SOI	8.0-9.00 FT	Yes	Subsurface Soil	18.77	6.41	No
SHI-04845	072605-SOI-04845-08.00	7/26/2005	SOI	7.0-8.00 FT	Yes	Subsurface Soil	18.77	10.83	No
SHI-04845	072605-SOI-04845-07.00	7/26/2005	SOI	6.0-7.00 FT	Yes	Subsurface Soil	18.77	322.02	No
SHI-04845	072605-SOI-04845-06.00	7/26/2005	SOI	5.0-6.00 FT	Yes	Subsurface Soil	18.77	934.31	No
SHI-04845	072605-SOI-04845-05.00	7/26/2005	SOI	4.0-5.00 FT	Yes	Subsurface Soil	18.77	183.55	No
SHI-04845	072605-SOI-04845-04.00	7/26/2005	SOI	3.0-4.00 FT	Yes	Subsurface Soil	18.77	335.33	No
SHI-04845	072605-SOI-04845-03.00	7/26/2005	SOI	2.5-3.00 FT	Yes	Subsurface Soil	18.77	4723.32	No
SHI-04845	072605-SOI-04845-02.50	7/26/2005	SOI	2.0-2.50 FT	Yes	Subsurface Soil	18.77	4031.51	No
SHI-04845	072605-SOI-04845-02.00	7/26/2005	SOI	1.5-2.00 FT	Yes	Subsurface Soil	18.77	4363.27	No
SHI-04845	072605-SOI-04845-01.50	7/26/2005	SOI	1.0-1.50 FT	Yes	Subsurface Soil	18.77	6160.45	No
SHI-04845	072605-SOI-04845-01.00	7/26/2005	SOI	0.5-1.00 FT	Yes	Subsurface Soil	18.77	3440.10	No
SHI-04845	072605-SOI-04845-00.50	7/26/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	18.77	3822.90	Yes
SHI-04846	072705-SOI-04846-03.00	7/27/2005	SOI						

Table F-1
 Soil Samples Used in Overall Nature and Extent Evaluation
 Appendix F Furan and Dioxin Distribution in Floodplain Soil

Location ID	Field Sample ID	Sampling Date	Matrix	Sample Depth	Within 100-year Floodplain?	Interval Assign	Rivermile	TEQ ¹ (ng/Kg)	Scoping Study Surface Soil
THT-03163	121004-SOI-03163-02.50A	12/10/2004	SOI	2.0-2.50 FT	Yes	Subsurface Soil	0.05	0.18	No
THT-03163	121004-SOI-03163-02.00A	12/10/2004	SOI	1.5-2.00 FT	Yes	Subsurface Soil	0.05	0.55	No
THT-03163	121004-SOI-03163-01.50A	12/10/2004	SOI	1.0-1.50 FT	Yes	Subsurface Soil	0.05	12.44	No
THT-03163	121004-SOI-03163-01.00A	12/10/2004	SOI	0.5-1.00 FT	Yes	Subsurface Soil	0.05	424.47	No
THT-03163	121004-SOI-03163-00.50A	12/10/2004	SOI	0.0-0.50 FT	Yes	Surface Soil	0.05	1015.30	No
THT-04730	062905-SOI-04730-00.50	6/29/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.85	1791.85	Yes
THT-04731	062905-SOI-04731-00.50	6/29/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.93	822.50	Yes
THT-04732	062905-SOI-04732-00.50	6/29/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.57	3011.81	Yes
THT-04733	062905-SOI-04733-00.50	6/29/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.50	7139.74	Yes
THT-04778	063005-SOI-04778-00.50	6/30/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.40	1824.60	Yes
THT-04779	063005-SOI-04779-00.50	6/30/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.30	748.12	Yes
THT-04781	063005-SOI-04781-00.50	6/30/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.16	470.93	Yes
THT-04782	062905-SOI-04782-00.50	6/29/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.80	1531.02	Yes
THT-04783	063005-SOI-04783-00.50	6/30/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.62	4255.74	Yes
THT-04786	063005-SOI-04786-00.50	6/30/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.26	622.96	Yes
THT-04787	070705-SOI-04787-08.00	7/7/2005	SOI	7.0-8.00 FT	Yes	Subsurface Soil	11.54	1859.53	No
THT-04787	070705-SOI-04787-07.00	7/7/2005	SOI	6.0-7.00 FT	Yes	Subsurface Soil	11.54	9378.62	No
THT-04787	070705-SOI-04787-06.00	7/7/2005	SOI	5.0-6.00 FT	Yes	Subsurface Soil	11.54	23579.50	No
THT-04787	070705-SOI-04787-05.00	7/7/2005	SOI	4.0-5.00 FT	Yes	Subsurface Soil	11.54	18487.10	No
THT-04787	070705-SOI-04787-04.00	7/7/2005	SOI	3.0-4.00 FT	Yes	Subsurface Soil	11.54	5282.46	No
THT-04787	070705-SOI-04787-03.00	7/7/2005	SOI	2.5-3.00 FT	Yes	Subsurface Soil	11.54	3582.74	No
THT-04787	070705-SOI-04787-02.50	7/7/2005	SOI	2.0-2.50 FT	Yes	Subsurface Soil	11.54	3482.73	No
THT-04787	070705-SOI-04787-02.00	7/7/2005	SOI	1.5-2.00 FT	Yes	Subsurface Soil	11.54	3797.65	No
THT-04787	070705-SOI-04787-01.50	7/7/2005	SOI	1.0-1.50 FT	Yes	Subsurface Soil	11.54	3935.27	No
THT-04787	070705-SOI-04787-01.00	7/7/2005	SOI	0.5-1.00 FT	Yes	Subsurface Soil	11.54	2178.10	No
THT-04787	063005-SOI-04787-00.50	6/30/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.54	4597.88	Yes
THT-04788	063005-SOI-04788-00.50	6/30/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.82	10.16	Yes
THT-04789	062905-SOI-04789-00.50	6/29/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.48	712.63	Yes
THT-04790	062905-SOI-04790-00.50	6/29/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.52	8.50	Yes
THT-04791	063005-SOI-04791-00.50	6/30/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.62	3925.22	Yes
THT-04792	071305-SOI-04792-00.50	7/13/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.70	2112.85	Yes
THT-04793	063005-SOI-04793-00.50	6/30/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.70	1602.72	Yes
THT-04794	062905-SOI-04794-00.50	6/29/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.50	33.31	Yes
THT-04795	063005-SOI-04795-00.50	6/30/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.76	23.46	Yes
THT-04796	062905-SOI-04796-00.50	6/29/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.63	1412.79	Yes
THT-04798	070505-SOI-04798-09.00	7/5/2005	SOI	8.0-9.00 FT	Yes	Subsurface Soil	11.57	8.19	No
THT-04798	070505-SOI-04798-08.00	7/5/2005	SOI	7.0-8.00 FT	Yes	Subsurface Soil	11.57	3.56	No
THT-04798	070505-SOI-04798-07.00	7/5/2005	SOI	6.0-7.00 FT	Yes	Subsurface Soil	11.57	47.88	No
THT-04798	070505-SOI-04798-06.00	7/5/2005	SOI	5.0-6.00 FT	Yes	Subsurface Soil	11.57	731.28	No
THT-04798	070505-SOI-04798-05.00	7/5/2005	SOI	4.0-5.00 FT	Yes	Subsurface Soil	11.57	25.26	No
THT-04798	070505-SOI-04798-04.00	7/5/2005	SOI	3.0-4.00 FT	Yes	Subsurface Soil	11.57	9.18	No
THT-04798	070505-SOI-04798-03.00	7/5/2005	SOI	2.5-3.00 FT	Yes	Subsurface Soil	11.57	69.61	No
THT-04798	070505-SOI-04798-02.50	7/5/2005	SOI	2.0-2.50 FT	Yes	Subsurface Soil	11.57	4749.30	No
THT-04798	070505-SOI-04798-02.00	7/5/2005	SOI	1.5-2.00 FT	Yes	Subsurface Soil	11.57	11030.70	No
THT-04798	070505-SOI-04798-01.50	7/5/2005	SOI	1.0-1.50 FT	Yes	Subsurface Soil	11.57	12289.50	No
THT-04798	070505-SOI-04798-01.00	7/5/2005	SOI	0.5-1.00 FT	Yes	Subsurface Soil	11.57	9825.63	No
THT-04798	062905-SOI-04798-00.50	6/29/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.57	5956.52	Yes
THT-04799	062905-SOI-04799-00.50	6/29/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.51	8230.86	Yes
THT-04801	070605-SOI-04801-06.00	7/6/2005	SOI	5.0-6.00 FT	Yes	Subsurface Soil	11.55	0.84	No
THT-04801	070605-SOI-04801-05.00	7/6/2005	SOI	4.0-5.00 FT	Yes	Subsurface Soil	11.55	1.59	No
THT-04801	070605-SOI-04801-04.00	7/6/2005	SOI	3.0-4.00 FT	Yes	Subsurface Soil	11.55	35.73	No
THT-04801	070605-SOI-04801-03.00	7/6/2005	SOI	2.5-3.00 FT	Yes	Subsurface Soil	11.55	55.52	No
THT-04801	070605-SOI-04801-02.50	7/6/2005	SOI	2.0-2.50 FT	Yes	Subsurface Soil	11.55	267.85	No
THT-04801	070605-SOI-04801-02.00	7/6/2005	SOI	1.5-2.00 FT	Yes	Subsurface Soil	11.55	4571.57	No
THT-04801	070605-SOI-04801-01.50	7/6/2005	SOI	1.0-1.50 FT	Yes	Subsurface Soil	11.55	5400.47	No
THT-04801	070605-SOI-04801-01.00	7/6/2005	SOI	0.5-1.00 FT	Yes	Subsurface Soil	11.55	2738.19	No
THT-04801	062905-SOI-04801-00.50	6/29/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.55	2926.71	Yes
THT-04803	062905-SOI-04803-00.50	6/29/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.65	1775.22	Yes
THT-04804	062905-SOI-04804-00.50	6/29/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.55	1076.00	Yes
THT-04805	070505-SOI-04805-07.00	7/5/2005	SOI	6.0-7.00 FT	Yes	Subsurface Soil	11.55	0.48	No
THT-04805	070505-SOI-04805-06.00	7/5/2005	SOI	5.0-6.00 FT	Yes	Subsurface Soil	11.55	0.90	No
THT-04805	070505-SOI-04805-05.00	7/5/2005	SOI	4.0-5.00 FT	Yes	Subsurface Soil	11.55	777.15	No
THT-04805	070505-SOI-04805-04.00	7/5/2005	SOI	3.0-4.00 FT	Yes	Subsurface Soil	11.55</td		

Table F-1
 Soil Samples Used in Overall Nature and Extent Evaluation
Appendix F Furan and Dioxin Distribution in Floodplain Soil

Location ID	Field Sample ID	Sampling Date	Matrix	Sample Depth	Within 100-year Floodplain?	Interval Assign	Rivermile	TEQ ¹ (ng/Kg)	Scoping Study Surface Soil
THT-04861	062905-SOI-04861-00.50	6/29/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.61	2720.77	Yes
THT-04862	062905-SOI-04862-00.50	6/29/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.97	874.00	Yes
THT-04863	062905-SOI-04863-00.50	6/29/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.59	3596.20	Yes
THT-04865	063005-SOI-04865-00.50	6/30/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.53	4863.42	Yes
THT-04866	063005-SOI-04866-00.50	6/30/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.32	1824.26	Yes
THT-04867	063005-SOI-04867-00.50	6/30/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.24	611.25	Yes
THT-04887	063005-SOI-04887-00.50	6/30/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.44	3269.87	Yes
THT-04951	062905-SOI-04951-00.50	6/29/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.30	19.82	Yes
THT-04952	080105-SOI-04952-00.50	8/1/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.35	7.68	Yes
THT-04953	080105-SOI-04953-00.50	8/1/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.35	6.70	Yes
THT-04954	062905-SOI-04954-00.50	6/29/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.21	17.63	Yes
THT-04955	062905-SOI-04955-00.50	6/29/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.22	1631.04	Yes
THT-04956	062905-SOI-04956-00.50	6/29/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.25	6.02	Yes
THT-04957	062905-SOI-04957-00.50	6/29/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.30	4.07	Yes
THT-04958	080105-SOI-04958-00.50	8/1/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.37	14.51	Yes
THT-04959	080105-SOI-04959-00.50	8/1/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.41	5.66	Yes
THT-04960	080105-SOI-04960-00.50	8/1/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.40	6.49	Yes
THT-04961	080105-SOI-04961-00.50	8/1/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.41	8.12	Yes
THT-04962	080105-SOI-04962-00.50	8/1/2005	SOI	0.0-0.50 FT	No	Surface Soil	0.41	77.00	Yes
THT-04965	063005-SOI-04965-00.50	6/30/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.08	45.35	Yes
THT-04966	063005-SOI-04966-00.50	6/30/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.67	976.09	Yes
THT-04967	063005-SOI-04967-00.50	6/30/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.86	4.65	Yes
THT-04968	080205-SOI-04968-00.50	8/2/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	12.09	6.44	Yes
THT-04984	070605-SOI-04984-12.00	7/6/2005	SOI	11.0-12.00 FT	Yes	Subsurface Soil	11.95	0.90	No
THT-04984	070605-SOI-04984-11.00	7/6/2005	SOI	10.0-11.00 FT	Yes	Subsurface Soil	11.95	7.04	No
THT-04984	070605-SOI-04984-10.00	7/6/2005	SOI	9.0-10.00 FT	Yes	Subsurface Soil	11.95	3515.88	No
THT-04984	070605-SOI-04984-09.00	7/6/2005	SOI	8.0-9.00 FT	Yes	Subsurface Soil	11.95	12800.30	No
THT-04984	070605-SOI-04984-08.00	7/6/2005	SOI	7.0-8.00 FT	Yes	Subsurface Soil	11.95	6284.52	No
THT-04984	070605-SOI-04984-07.00	7/6/2005	SOI	6.0-7.00 FT	Yes	Subsurface Soil	11.95	7264.04	No
THT-04984	070605-SOI-04984-06.00	7/6/2005	SOI	5.0-6.00 FT	Yes	Subsurface Soil	11.95	4088.16	No
THT-04984	070605-SOI-04984-05.00	7/6/2005	SOI	4.0-5.00 FT	Yes	Subsurface Soil	11.95	12483.70	No
THT-04984	070605-SOI-04984-04.00	7/6/2005	SOI	3.0-4.00 FT	Yes	Subsurface Soil	11.95	15961.50	No
THT-04984	070605-SOI-04984-03.00	7/6/2005	SOI	2.5-3.00 FT	Yes	Subsurface Soil	11.95	21814.20	No
THT-04984	070605-SOI-04984-02.50	7/6/2005	SOI	2.0-2.50 FT	Yes	Subsurface Soil	11.95	14876.80	No
THT-04984	070605-SOI-04984-02.00	7/6/2005	SOI	1.5-2.00 FT	Yes	Subsurface Soil	11.95	8725.20	No
THT-04984	070605-SOI-04984-01.50	7/6/2005	SOI	1.0-1.50 FT	Yes	Subsurface Soil	11.95	5078.17	No
THT-04984	070605-SOI-04984-01.00	7/6/2005	SOI	0.5-1.00 FT	Yes	Subsurface Soil	11.95	2551.52	No
THT-04984	062905-SOI-04984-00.50	6/29/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.95	3603.13	Yes
THT-04985	070805-SOI-04985-03.00	7/8/2005	SOI	2.5-3.00 FT	Yes	Subsurface Soil	11.54	4.52	No
THT-04985	070805-SOI-04985-02.50	7/8/2005	SOI	2.0-2.50 FT	Yes	Subsurface Soil	11.54	4.72	No
THT-04985	070805-SOI-04985-02.00	7/8/2005	SOI	1.5-2.00 FT	Yes	Subsurface Soil	11.54	14.40	No
THT-04985	070805-SOI-04985-01.50	7/8/2005	SOI	1.0-1.50 FT	Yes	Subsurface Soil	11.54	68.42	No
THT-04985	070805-SOI-04985-01.00	7/8/2005	SOI	0.5-1.00 FT	Yes	Subsurface Soil	11.54	203.20	No
THT-04985	062905-SOI-04985-00.50	6/29/2005	SOI	0.0-0.50 FT	Yes	Surface Soil	11.54	394.98	Yes

* Assumed to be inside floodplain

¹ Extracted from Locus 10/31/2005

TEQ concentrations reported here and in other tables in this appendix are the raw calculated TEQ values, they have not been rounded to two significant figures because the raw calculated values were used in the evaluations presented in this appendix.

Table F-2

Surface Soil Samples and Assigned Variables Used in Influencing Factors Evaluation
Appendix F Furan and Dioxin Distribution in Floodplain Soil

LocationID	SampleID	Easting	Northing	Study Area	Side of River	Relative Elevation (ft)	Distance from River (ft)	Floodplain Width (ft)	Percent Floodplain	Distance from Plant (ft)	Streamline Distance (ft)	Velocity	Shear Stress	Disturbance	Floodplain (8 year)	Floodplain (100 year)	Grain Size - Percent less than 0.005	Grain Size - Percent 0.005 to 0.075	Grain Size - Percent 0.075 to 5	Grain Size - Percent 5 to 50	Grain Size - Category	Grain Size - Continuous Variable	TOC	Vegetation
FRE-04726	062805-SOI-04726-00-50	13175957	748092.9	Area 1	East	11.59	506	2204	23%	15130	2004.4	29.3	15.3	Undisturbed	IN	In	32.4	48.2	19.4	0	Mix	50.59	30000	Heavily Forested
FRE-04727	062705-SOI-04727-00-50	13176940	747664.03	Area 1	East	8.74	529	2007	26%	16105	2074.7	20.5	4.5	Undisturbed	IN	In	26.1	48.7	25.2	0	Mix	65.08	24400	Light Forest
FRE-04728	062805-SOI-04728-00-50	13176299	749478.83	Area 1	East	9.62	1765	2109	84%	13720	6005.3	24.4	6.9	Undisturbed	IN	In	28.7	26.2	45.1	0	Mix	113.94	45200	Light Forest
FRE-04738	062705-SOI-04738-00-50	13176243	749223.99	Area 1	East	9.48	1558	2168	72%	13945	5874.1	23.1	6.1	Undisturbed	IN	In	22	26.7	51.3	0	Sand	129.43	21800	Heavily Forested
FRE-04740	062705-SOI-04740-00-50	13176071	749756.5	Area 1	East	10.88	1764	2046	86%	13360	5690.3	25.3	8.7	Undisturbed	IN	In	31.5	28.6	39.9	0	Mix	101.05	23800	Light Forest
FRE-04741	062705-SOI-04741-00-50	13176759	747628.73	Area 1	East	10.54	415	2036	20%	15965	1890.9	22.5	6.5	Disturbed	IN	In	34.6	53.4	12.1	0	Silt	32.56	23000	Grass
FRE-04745	062805-SOI-04745-00-50	13175895	749394.02	Area 1	East	10.52	1395	2072	67%	13560	5441.8	33.1	14.2	Disturbed	IN	In	21.8	32.4	44.3	1.5	Mix	153.41	27400	Shrub
FRE-04746	062805-SOI-04746-00-50	13176768	749417.2	Area 1	East	11.23	2046	2181	94%	15395	6669.1	11.6	2.0	Undisturbed	IN	In	25.2	27.4	47.4	0	Mix	119.72	25500	Heavily Forested
FRE-04754	062805-SOI-04754-00-50	13176419	749587.23	Area 1	East	9.97	1925	2105	91%	13700	6118.8	18.7	4.3	Undisturbed	IN	In	18.8	20.2	60.8	0.1	Sand	155.65	39300	Light Forest
FRE-04755	062805-SOI-04755-00-50	13176600	749047.71	Area 1	East	8.83	1646	2185	75%	15385	6407.3	19.6	4.1	Undisturbed	IN	In	18.8	22.3	58.9	0	Sand	148.24	32500	Heavily Forested
FRE-04760	062805-SOI-04760-00-50	13175886	747604.78	Area 1	East	12.45	35	2188	2%	15240	866.1	48.7	40.6	Undisturbed	IN	In	8.5	31.7	59.8	0	Sand	150.81	33400	Heavily Forested
FRE-04761	062705-SOI-04761-00-50	13176411	747798	Area 1	East	11.45	430	2103	20%	15640	1720.2	35.4	17.6	Disturbed	IN	In	36.6	56.2	7	0.2	Silt	25.43	27900	Grass
FRE-04762	062705-SOI-04762-00-50	13176067	748861.5	Area 1	East	13.09	1190	2202	54%	14415	2026.6	6.2	0.9	Disturbed	IN	In	2.4	10.3	87.3	0	Sand	218.67	7060	Grass
FRE-04765	062805-SOI-04765-00-50	13176763	748522.96	Area 1	East	8.33	1230	2101	59%	15680	6730.4	14.9	2.2	Undisturbed	IN	In	25.2	26.4	48.4	0	Mix	122.18	36900	Heavily Forested
FRE-04766	062805-SOI-04766-00-50	13176415	748692.23	Area 1	East	9.57	1243	2173	57%	15340	5922.3	13.4	2.0	Undisturbed	IN	In	8.2	31.9	59.9	0	Sand	151.07	31600	Heavily Forested
FRE-04767	062705-SOI-04767-00-50	13175891	748499.02	Area 1	East	14.44	813	2207	37%	14530	1844.0	6.3	4.9	Disturbed	IN	In	6.6	17.4	76	0	Sand	190.73	9030	Grass
FRE-04768	062805-SOI-04768-00-50	13176063	747967.27	Area 1	East	11.10	435	2173	20%	15270	1668.6	45.5	27.9	Undisturbed	IN	In	40.8	51.9	7.4	0	Silt	20.78	22600	Light Forest
FRE-04769	062805-SOI-04769-00-50	13176935	747991.97	Area 1	East	7.35	822	2027	41%	15940	3017.4	19.6	3.8	Undisturbed	IN	In	47.6	34	18.3	0	Mix	47.35	46800	Light Forest
FRE-04770	062805-SOI-04770-00-50	13176248	748325.43	Area 1	East	12.34	841	2162	39%	15315	2311.2	3.3	0.2	Disturbed	IN	In	14.3	21.2	64.4	0	Sand	161.92	12900	Grass
FRE-04772	062705-SOI-04772-00-50	13176583	747266.24	Area 1	East	12.88	15	2045	1%	15985	739.0	55.4	41.2	Undisturbed	IN	In	3.1	15	81.9	0	Sand	205.37	9610	Heavily Forested
FRE-04773	062705-SOI-04773-00-50	13176931	747096.97	Area 1	East	13.29	20	1896	1%	16370	391.7	47.2	40.2	Undisturbed	IN	In	7	15.1	77.9	0	Sand	195.39	15300	Heavily Forested
FRE-04775	062705-SOI-04775-00-50	13176587	748160.48	Area 1	East	9.00	825	2094	39%	15660	2756.2	8.7	0.9	Undisturbed	IN	In	19.8	37.5	42.6	0	Mix	108.10	29200	Light Forest
FRE-04777	062905-SOI-04777-00-50	13176939	748885.45	Area 1	East	9.55	1633	2095	78%	15700	6880.0	15.5	2.7	Undisturbed	IN	In	17	22.2	60.8	0	Sand	152.97	42000	Heavily Forested
FRE-04808	062705-SOI-04808-00-50	13176234	747436.27	Area 1	East	12.00	23	2100	1%	15615	1260.0	53.5	37.2	Undisturbed	IN	In	7	13.7	79.3	0.1	Sand	201.58	14800	Heavily Forested
FRE-04935	062805-SOI-04935-00-50	13175932	750346.99	Area 1	East	27.71	1937	1856	104%	12685	10000.0	0.0	0.0	Disturbed	Out	Out	5	17.1	77.9	0	Sand	195.46	20900	Shrub
FRE-04936	062905-SOI-04936-00-50	13176238	750085.35	Area 1	East	27.98	2100	2008	105%	13285	10000.0	0.0	0.0	Disturbed	Out	Out	4.9	17.6	76.7	0.8	Sand	214.48	23600	Grass
FRE-04937	062805-SOI-04937-00-50	13176749	749706	Area 1	East	23.23	2240	2219	101%	13855	10000.0	0.0	0.0	Disturbed	Out	Out	6.9	16.5	76.1	0.5	Sand	204.69	20000	Grass
FRE-04938	062805-SOI-04938-00-50	13177027	749412.9	Area 1	East	18.33	2153	2131	101%	15575	10000.0	0.5	0.1	Disturbed	Out	Out	7	17	76	0.1	Sand	193.47	36200	Shrub
FRE-04939	062805-SOI-04939-00-50	13177432	749144.74	Area 1	East	21.59	2082	2045	102%	15935	10000.0	0.0	0.0	Disturbed	Out	Out	3	9.3	87.7	0				

Table F-2

Surface Soil Samples and Assigned Variables Used in Influencing Factors Evaluation

Appendix F Furan and Dioxin Distribution in Floodplain Soil

LocationID	SampleID	Easting	Northing	Study Area	Side of River	Relative Elevation (ft)	Distance from River (ft)	Floodplain Width (ft)	Percent Floodplain	Distance from Plant (ft)	Streamline Distance (ft)	Velocity	Shear Stress	Disturbance	Floodplain (8 year)	Floodplain (100 year)	Grain Size - Percent less than 0.005	Grain Size - Percent 0.005 to 0.075	Grain Size - Percent 0.075 to 5	Grain Size - Percent 5 to 50	Grain Size - Category	Grain Size - Continuous Variable	TOC	Vegetation
THT-04788	063005-SOI-04788-00.50	13198635	711985.43	Area 2	West	6.26	35	28	125%	62395	10000.0	2.0	1.4	Disturbed	Out	In	4	8.7	52.1	35.1	Sand	1095.87	26800	Grass
THT-04789	062905-SOI-04789-00.50	13199480	714000	Area 2	East	7.47	598	795	75%	60610	6550.4	42.7	20.8	Undisturbed	IN	In	29.8	44.4	25.8	0	Mix	66.43	37900	Heavily Forested
THT-04790	062905-SOI-04790-00.50	13200191	713568.33	Area 2	East	20.59	1243	1206	103%	60805	10000.0	0.1	0.0	Disturbed	Out	In	3	4.7	92.3	0	Sand	230.95	12000	Grass
THT-04791	063005-SOI-04791-00.50	13198567	713067.33	Area 2	West	6.66	45	1648	3%	61370	1321.3	36.4	12.4	Undisturbed	IN	In	28.3	53.4	18.3	0	Silt	48.03	30200	Light Forest
THT-04792	071305-SOI-04792-00.50	13198452	712684.33	Area 2	West	-2.42	11	292	4%	61790	1800.1	60.8	28.3	Undisturbed	IN	In	17.8	72.4	9.7	0	Silt	27.24	11800	Light Forest
THT-04793	063005-SOI-04793-00.50	13198282	712769.26	Area 2	West	5.82	189	375	50%	61775	10000.0	2.1	1.1	Undisturbed	IN	In	27	57.5	15.5	0	Silt	41.19	10700	Light Forest
THT-04794	062905-SOI-04794-00.50	13199836	713784.33	Area 2	East	14.08	897	956	94%	60705	10000.0	0.8	1.4	Disturbed	IN	In	3	13.9	82.9	0.3	Sand	216.07	12000	Grass
THT-04795	063005-SOI-04795-00.50	13198364	712264.04	Area 2	West	26.77	118	40	295%	62070	10000.0	0.1	0.0	Disturbed	Out	In	12.7	37.4	49.9	0	Mix	126.31	25200	Grass
THT-04796	062905-SOI-04796-00.50	13198868	712984.17	Area 2	East	10.88	38	3065	1%	61385	89.8	58.3	56.7	Disturbed	IN	In	7	14.7	78.3	0	Sand	196.37	15300	Grass
THT-04798	062905-SOI-04798-00.50	13199257	713200	Area 2	East	9.78	354	2672	13%	61105	493.2	65.7	64.8	Undisturbed	IN	In	7.4	14.4	78.2	0	Sand	196.11	12400	Heavily Forested
THT-04799	062905-SOI-04799-00.50	13199369	713600.08	Area 2	East	10.03	420	1189	35%	60785	733.1	54.3	42.0	Undisturbed	IN	In	17	36.1	46.9	0	Mix	118.78	27700	Heavily Forested
THT-04801	062905-SOI-04801-00.50	13199724	713384.08	Area 2	East	5.56	778	1499	52%	60980	6591.2	63.9	39.9	Undisturbed	IN	In	34.3	54.9	10.8	0	Silt	29.37	39700	Light Forest
THT-04803	062905-SOI-04803-00.50	13199145	712799.83	Area 2	East	9.95	418	2053	20%	61500	441.2	9.6	5.2	Disturbed	IN	In	18.9	41.7	39.4	0	Mix	100.26	26000	Grass
THT-04804	062905-SOI-04804-00.50	13200079	713168.17	Area 2	East	4.84	1161	2333	50%	60990	7330.2	55.5	29.2	Undisturbed	IN	In	36.7	51.6	11.7	0	Silt	31.50	28600	Light Forest
THT-04805	062905-SOI-04805-00.50	13198954	713394.05	Area 2	East	8.70	17	1855	1%	60980	61.7	74.3	64.0	Disturbed	IN	In	4.8	9.3	82.6	3.3	Sand	297.65	831	Grass
THT-04806	062905-SOI-04806-00.50	13199138	712377	Area 2	East	9.53	431	2546	17%	62565	595.5	34.5	18.0	Disturbed	IN	In	21.9	48.4	29.7	0	Mix	76.30	32300	Grass
THT-04807	062905-SOI-04807-00.50	13198734	712597.01	Area 2	East	11.30	32	2669	1%	61775	99.0	59.0	61.5	Disturbed	IN	In	3.2	8.8	88	0	Sand	220.37	8430	Grass
THT-04809	062905-SOI-04809-00.50	13200225	711277.85	Area 2	East	10.19	31	1775	2%	64075	2136.9	44.1	26.2	Undisturbed	IN	In	9	15.8	75.2	0	Sand	188.68	14000	Light Forest
THT-04810	062905-SOI-04810-00.50	13198951	711971.74	Area 2	East	3.60	9	1989	0%	62635	7.6	87.5	70.8	Disturbed	IN	In	9	16.4	74.6	0	Sand	187.20	19200	Shrub
THT-04811	062905-SOI-04811-00.50	13199490	712119.03	Area 2	East	7.11	407	1980	21%	62990	1035.0	28.6	9.2	Disturbed	IN	In	26.1	39.7	34.2	0	Mix	87.22	24000	Shrub
THT-04812	062905-SOI-04812-00.50	13199282	711773.89	Area 2	East	9.41	25	1980	1%	63020	914.6	76.6	55.4	Undisturbed	IN	In	2	8.1	89.9	0	Sand	225.08	3410	Light Forest
THT-04813	062905-SOI-04813-00.50	13199615	711575.25	Area 2	East	1.09	18	1890	1%	63405	7.6	72.0	43.8	Undisturbed	IN	In	10	26.8	63.2	0	Sand	159.12	10300	Light Forest
THT-04814	062905-SOI-04814-00.50	13199993	711401.33	Area 2	East	7.19	15	1906	1%	63815	1817.8	55.9	35.5	Undisturbed	IN	In	13.6	31.9	54.4	0	Sand	137.34	22500	Light Forest
THT-04815	062905-SOI-04815-00.50	13200177	711703.5	Area 2	East	9.12	359	1906	19%	63785	1921.2	37.8	20.5	Disturbed	IN	In	24.6	56.6	18.8	0	Silt	49.39	15300	Shrub
THT-04816	062905-SOI-04816-00.50	13199836	711920.86	Area 2	East	8.55	411	1885	22%	63400	1495.1	34.0	14.5	Disturbed	IN	In	27.4	51.6	21	0	Silt	54.70	28000	Shrub
THT-04817	062905-SOI-04817-00.50	13200044	712253.17	Area 2	East	7.66	790	1935	41%	63390	1639.9	41.5	19.1	Undisturbed	IN	In	34.6	57.7	7.7	0	Silt	21.73	35300	Light Forest
THT-04818	062905-SOI-04818-00.50	13199696	712465.78	Area 2	East	6.42	800	2546	31%	62960	1184.5	36.0	13.5	Disturbed	IN	In	29.6	55.9	14.5	0	Silt	38.63	19600	Grass
THT-04856	062905-SOI-04856-00.50	13199126	713855.58	Area 2	East	9.33	235	889	26%	60645	445.9	52.7	38.3	Undisturbed	IN	In	15.7	35.1	49.2	0	Mix	124.48	22700	Heavily Forested
THT-04861	062905-SOI-04861-00.50	13199791	712871.58	Area 2	East	5.25	938	2701	35%	61285	1325.2	37.9	14.0	Undisturbed	IN	In	37.9	50.7	11.3	0	Silt	30.47	48000	Light Forest
THT-04862	062905-SOI-04862-00.5																							

TABLE F-3
Summary of ANOVA Results

Potential Explanatory Factor	P-Value	Potential Explanatory Factor	P-Value	Potential Explanatory Factor	P-Value
Distance from Plant	0.0071	Velocity	<0.0001	Disturbed/Undisturbed	0.0006
Inside/Outside 8-year Floodplain	<0.0001	Elevation	<0.0001	Side of River	0.9372
Distance from river	<0.0001	Grain Size Percentages (Percent Clay, Silt, Sand, Gravel)	<0.0001	Vegetation	0.0010
Percent Floodplain	<0.0001	Grain Size Category	0.0013	Study Area	0.0077
Streamline distance	<0.0001	Continuous Grain Size Metric	<0.0001		
Shear Stress	<0.0001	Total Organic Carbon	.0462		

TABLE F-4
Summary of Stepwise Regression (Areas 1 and 2 Combined)

Step	Factor Entered	Factor Dropped	Percent of Variability Explained by Model	P-Value at Step X	P-Value in Final Model
1	Streamline Distance		65%	<0.0001	0.0002
2	Elevation (%)		73%	<0.0001	NA
3	Percent Silt		78%	<0.0001	0.0001
4	Velocity		79%	0.0058	0.0348
5	TOC		81%	0.0069	0.0021
6	Percent Floodplain		82%	0.0068	0.0064
7	Inside/Outside 8-year Floodplain		83%	0.0256	<0.0001
8	Study Area		84%	0.0060	0.0011
9		Elevation (%)	84%	0.9126	NA
10	Disturbance		84%	0.0603	0.0605

TABLE F-5

Comparison of Inside Floodplain Versus Outside Floodplain TEQ Concentrations

Study Area	Inside 8-Year Floodplain Boundary			Outside 8-Year Floodplain Boundary		
	N	Median TEQ (ppt)	Range of TEQ (ppt)	N	Median TEQ (ppt)	Range of TEQ (ppt)
Area 1	47	235	10-8674	16	14	2-102
Area 2	46	1689	33-8231	18	8	4-77 (one outlier at 1631)
Area 3	4	166	10-3823	3	13	2-17
Confluence Area	1	12	NA	5	4	2-16

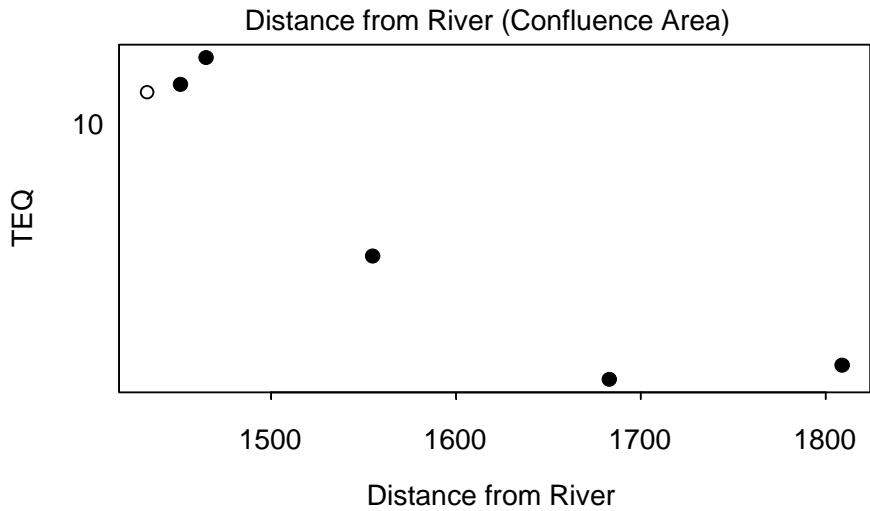
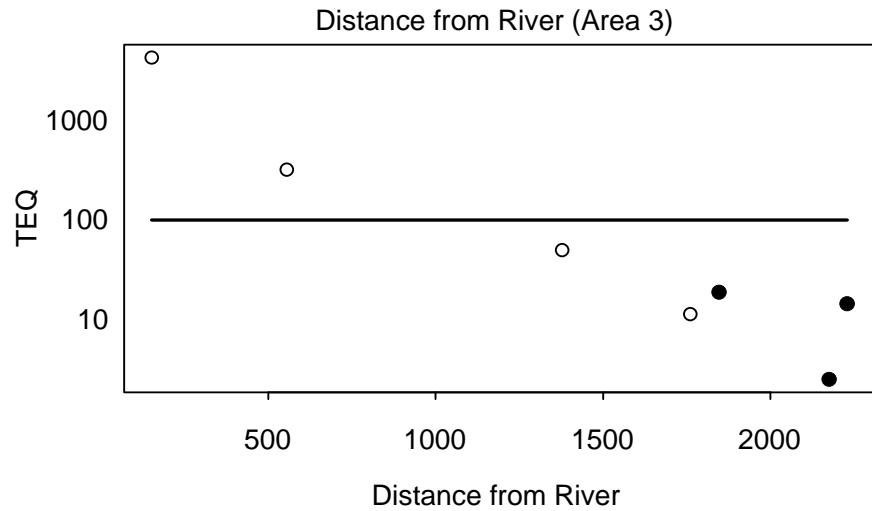
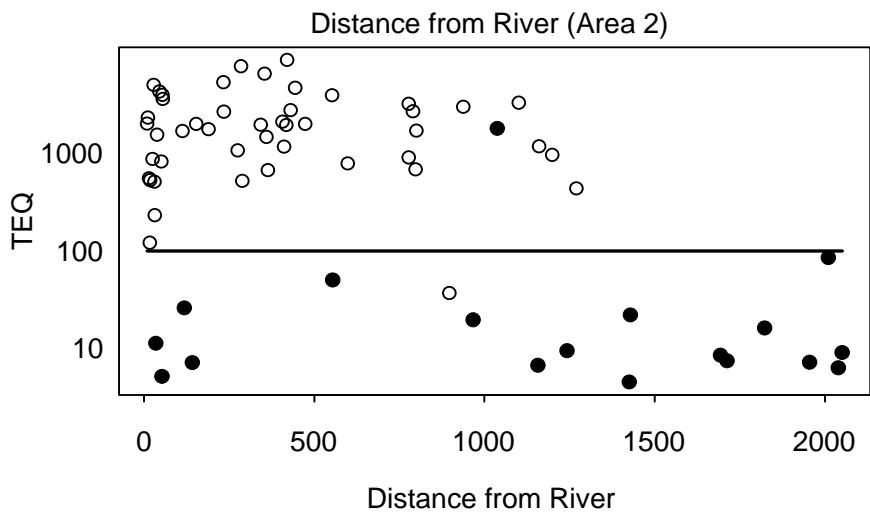
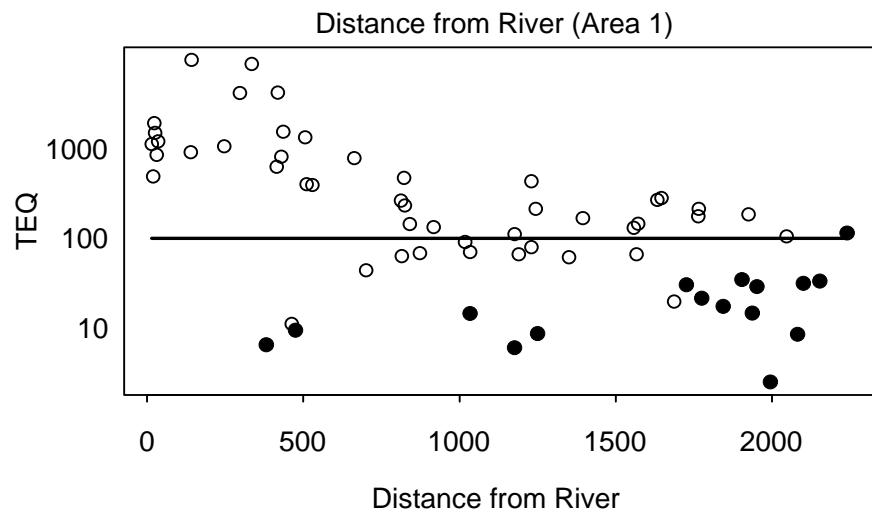
TABLE F-6

Comparison of Inside Floodplain Versus Outside Floodplain TEQ Concentrations

Study Area	Inside 8-Year Floodplain Boundary			Outside 8-Year Floodplain Boundary		
	N	Median TEQ (ppt)	Range of TEQ (ppt)	N	Median TEQ (ppt)	Range of TEQ (ppt)
Area 1 – Disturbed	21	82	10-8674	10	14	6-102
Area 1 - Undisturbed	26	429	94-7841	6	17	2-31
Area 2 – Disturbed	17	1337	33-2524	9	10	6-23 (one outlier at 1631)
Area 2 - Undisturbed	29	2429	395-8231	9	8	4-77

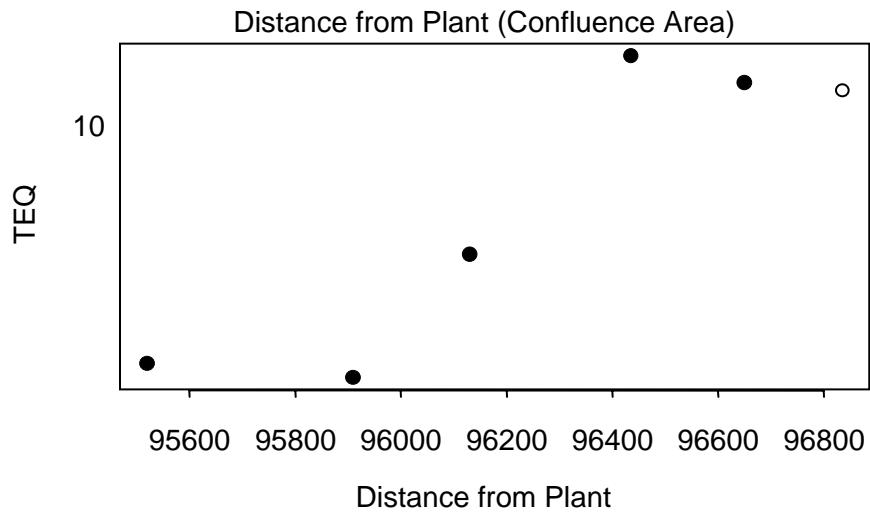
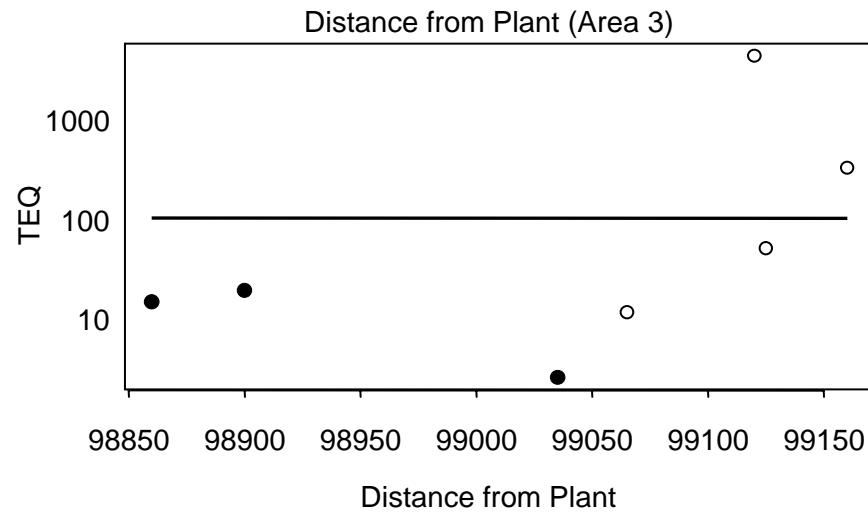
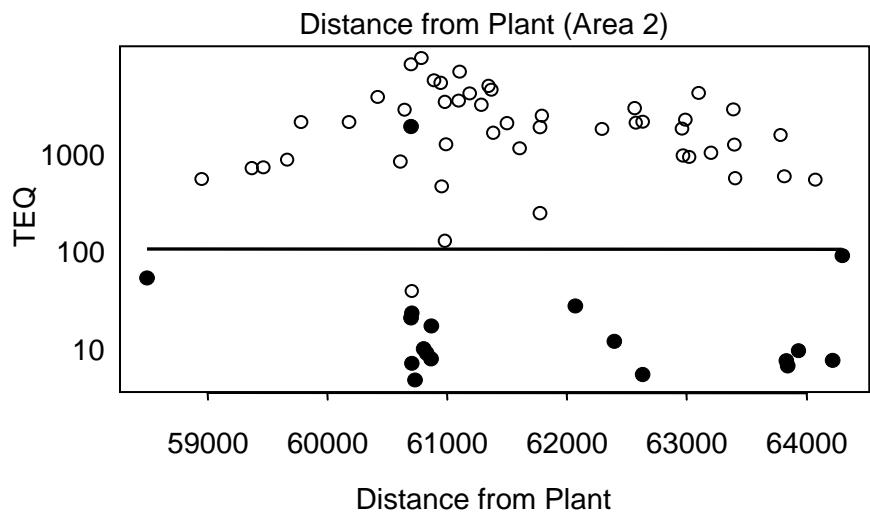
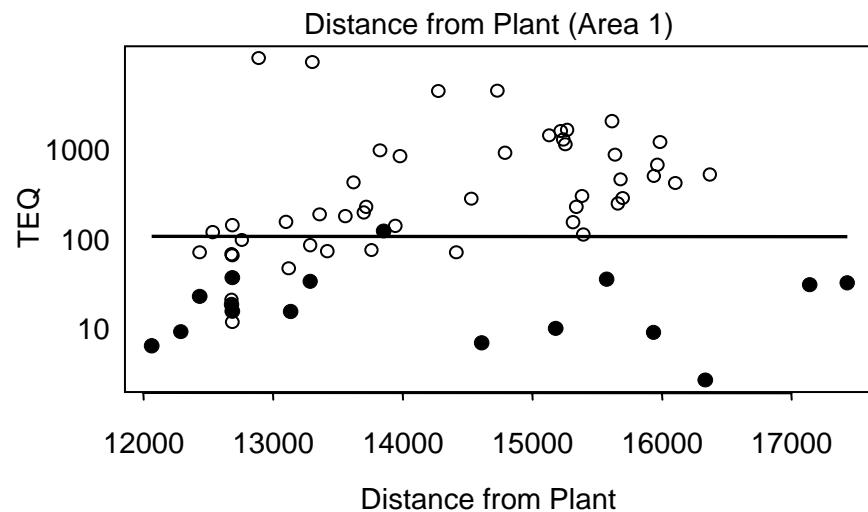
Attachment 1

TEQ versus Distance from River



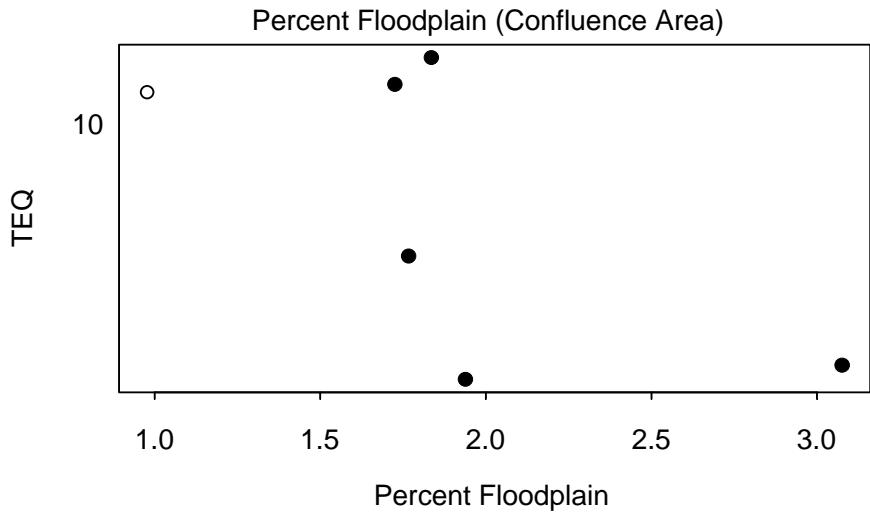
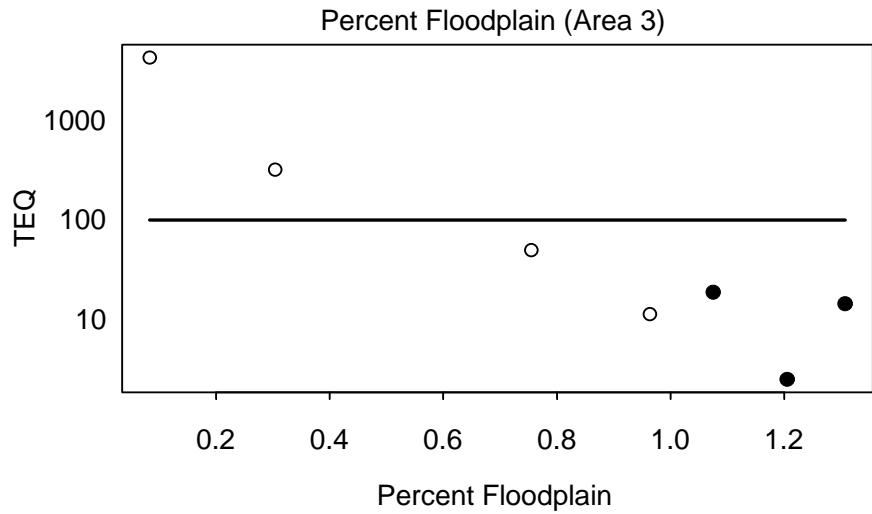
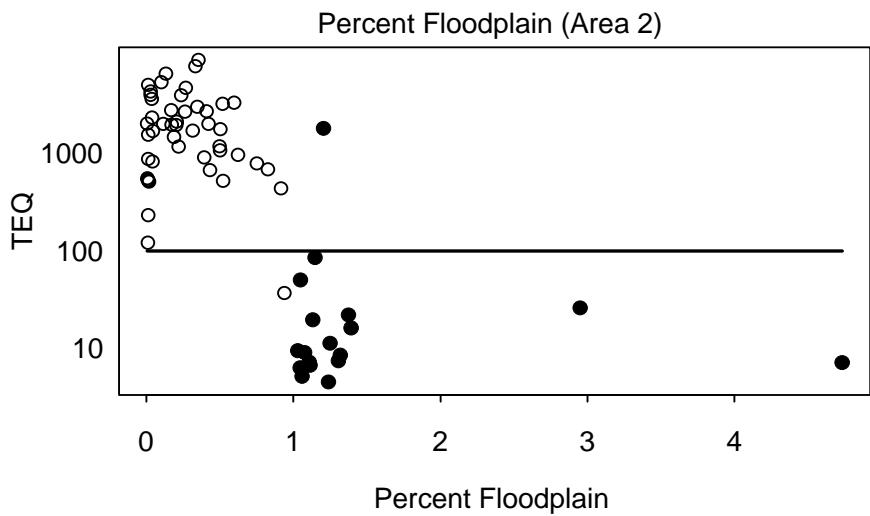
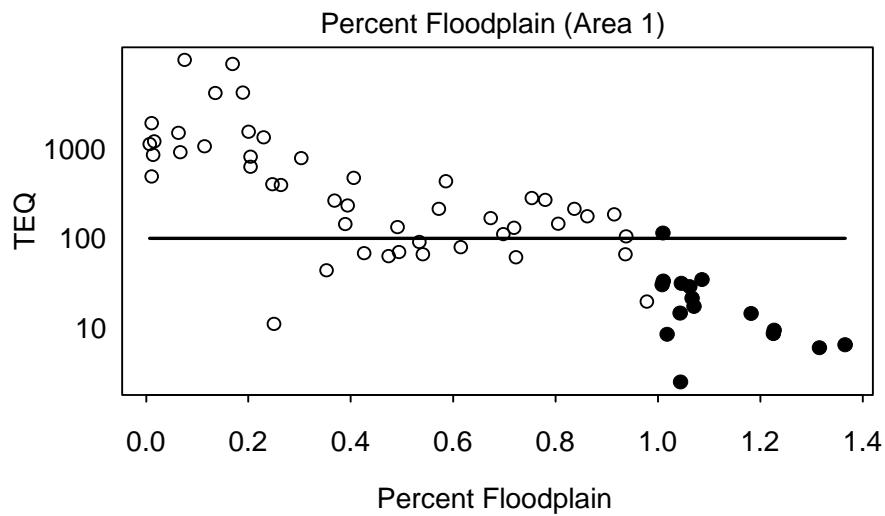
Solid=Outside Floodplain; Open=Inside Floodplain

TEQ versus Distance from Plant



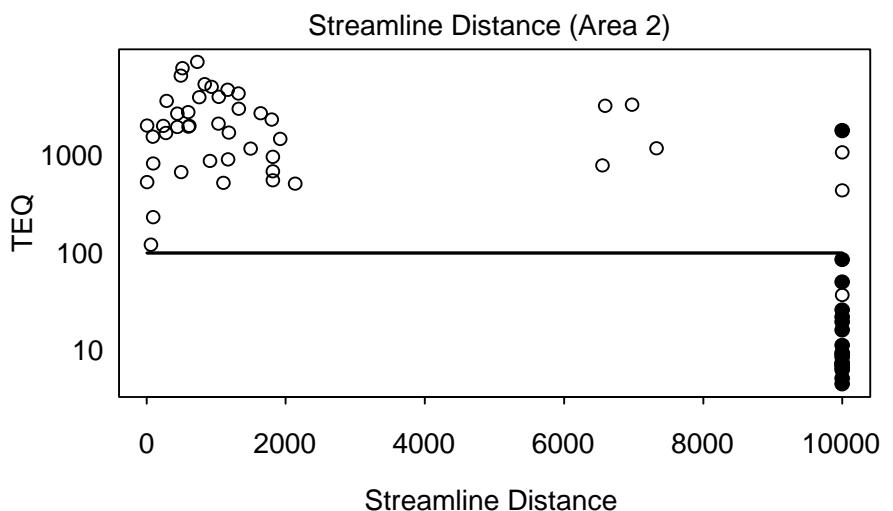
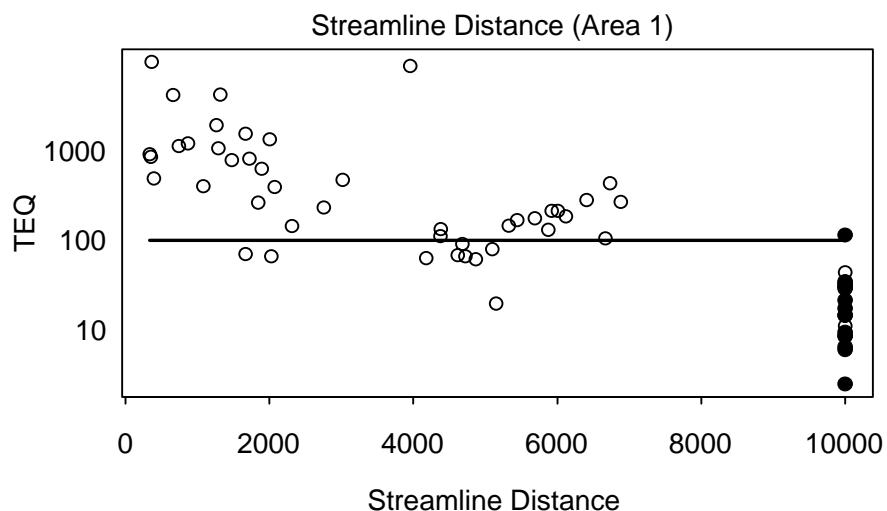
Solid=Outside Floodplain; Open=Inside Floodplain

TEQ versus Percent Floodplain



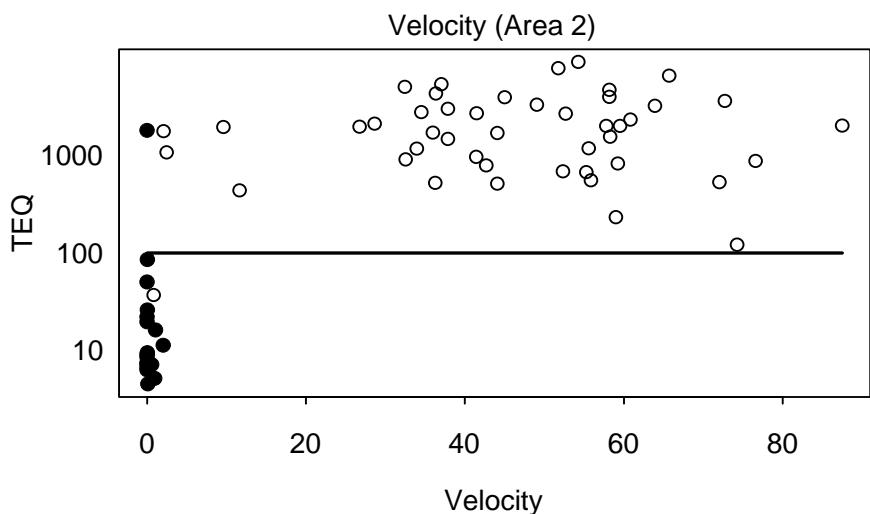
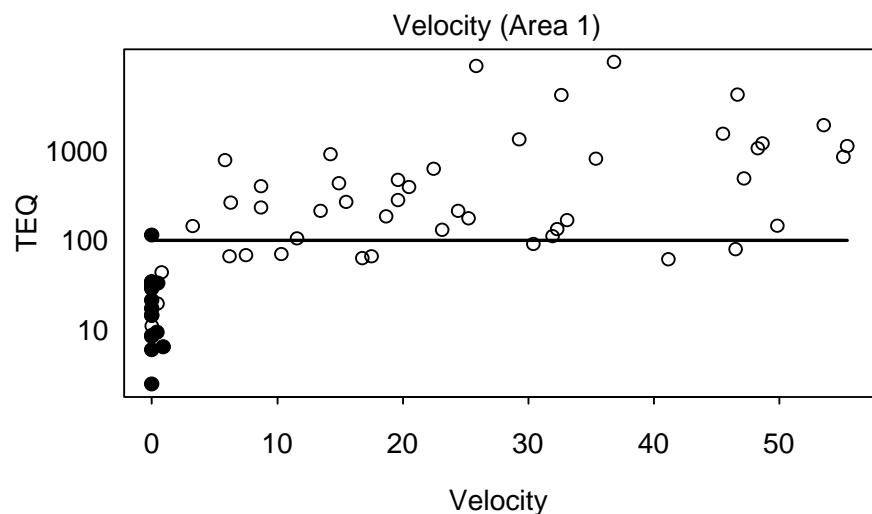
Solid=Outside Floodplain; Open=Inside Floodplain

TEQ versus Streamline Distance



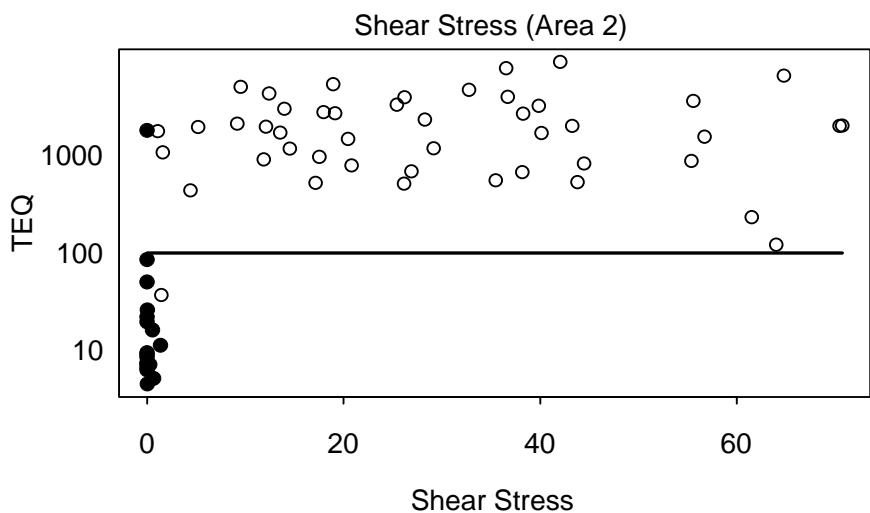
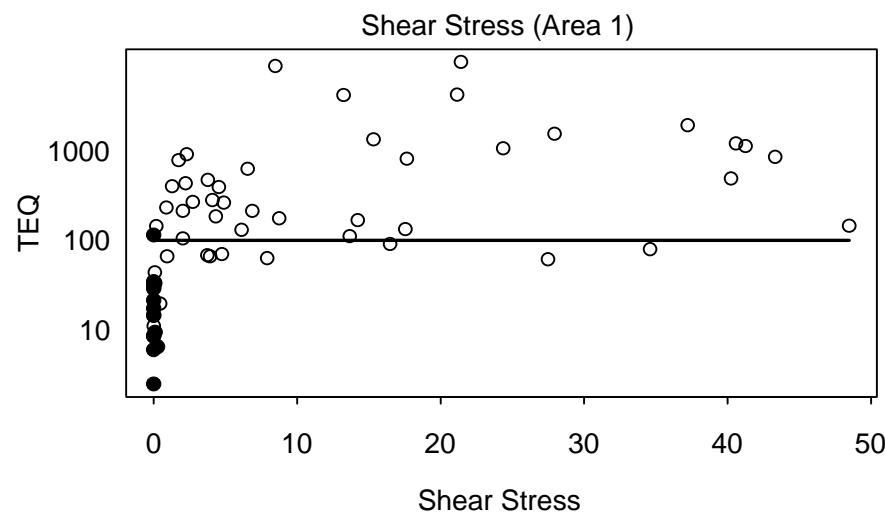
Solid=Outside Floodplain; Open=Inside Floodplain

TEQ versus Velocity



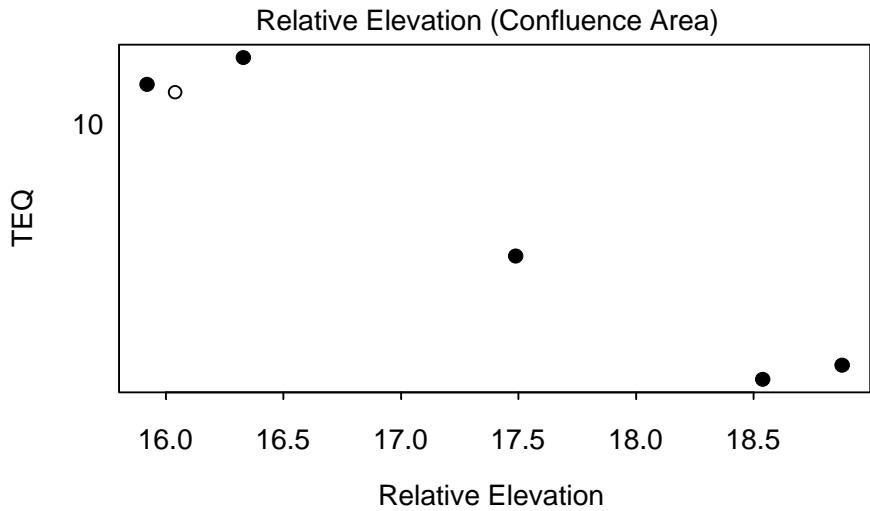
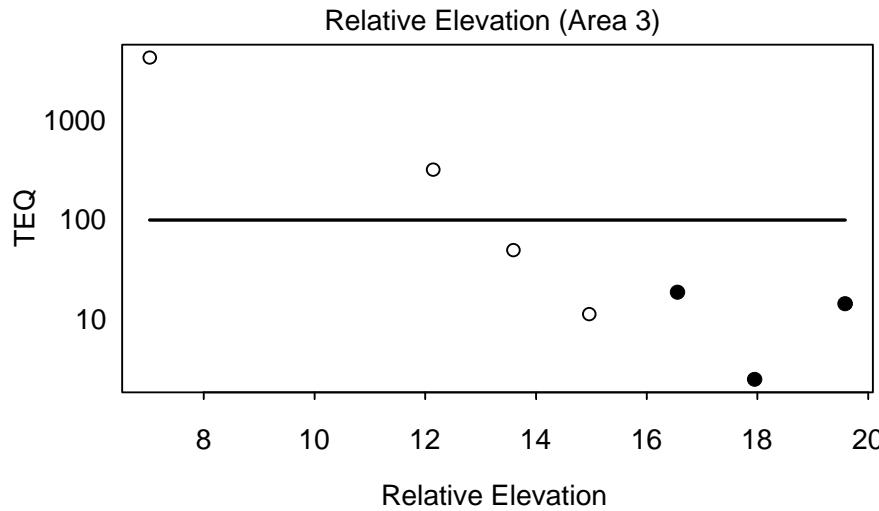
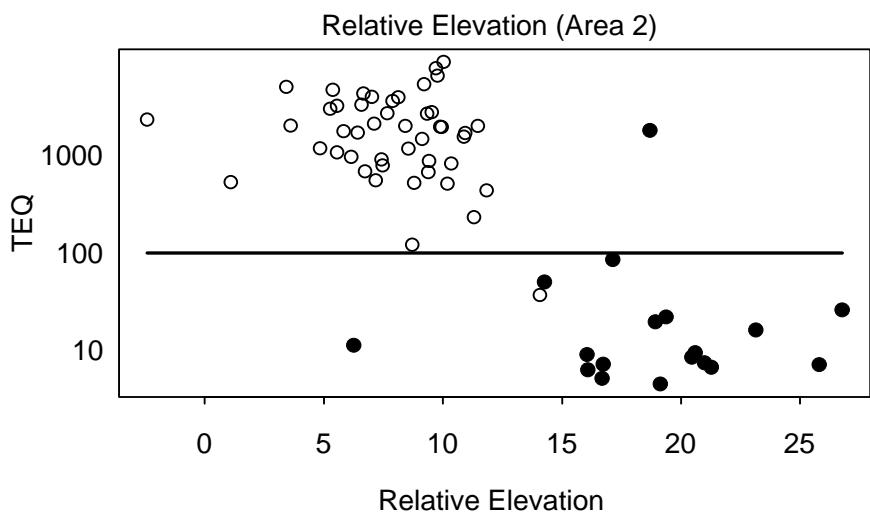
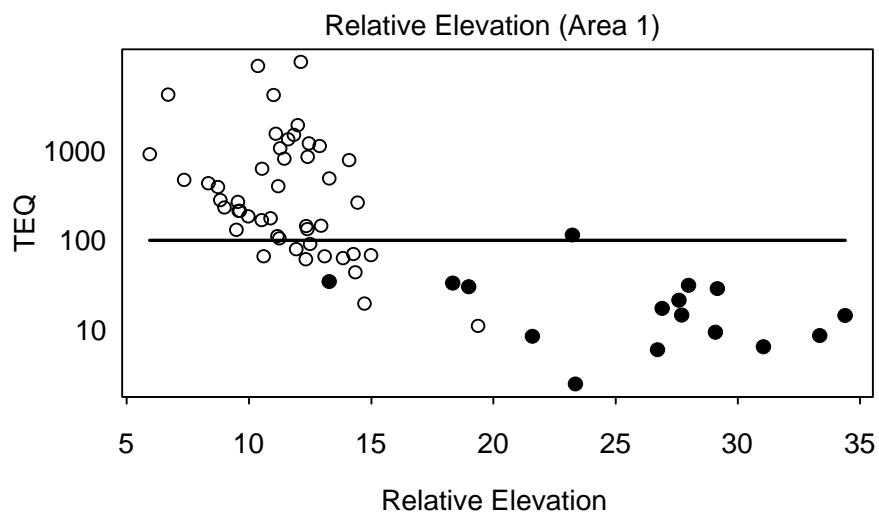
Solid=Outside Floodplain; Open=Inside Floodplain

TEQ versus Shear Stress



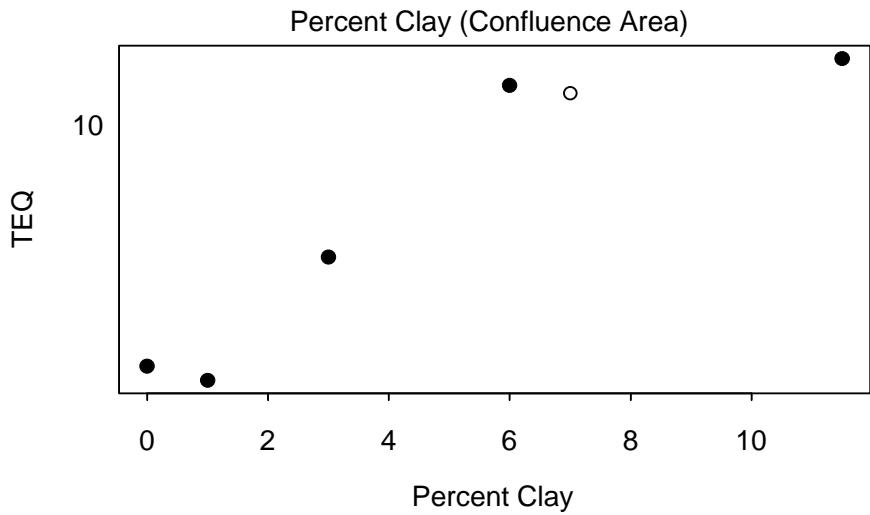
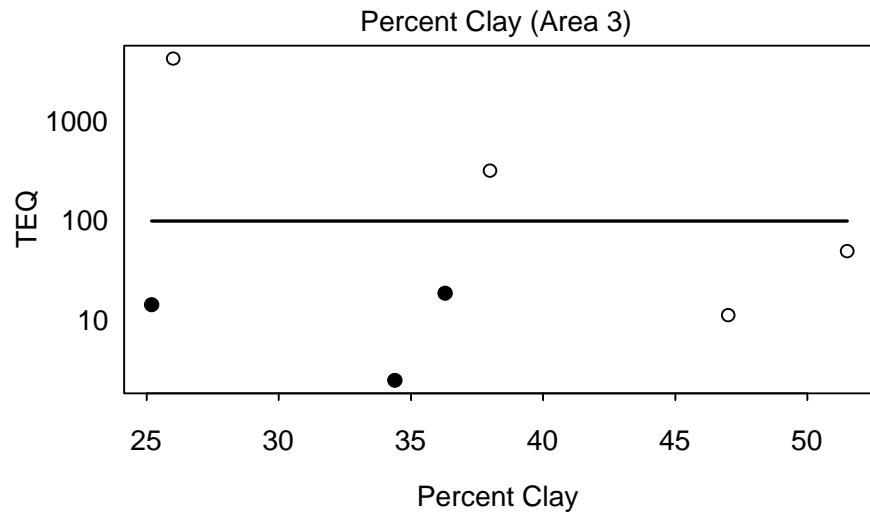
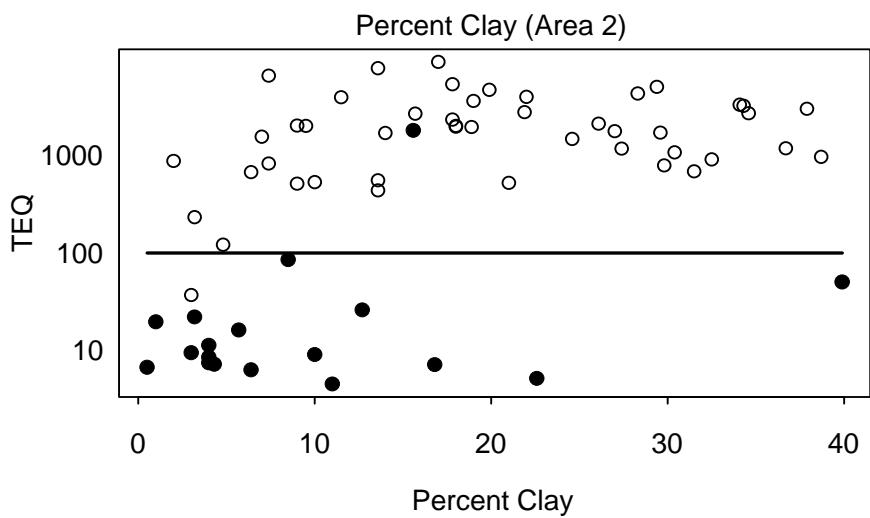
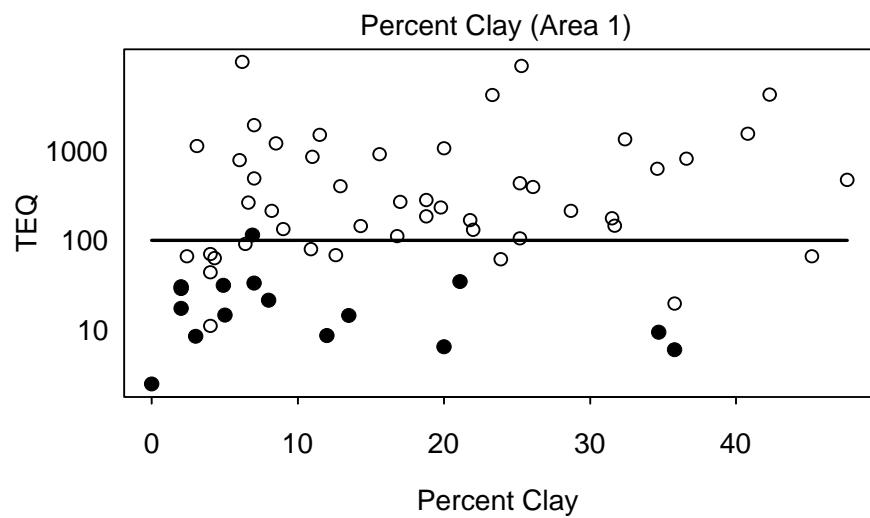
Solid=Outside Floodplain; Open=Inside Floodplain

TEQ versus Relative Elevation



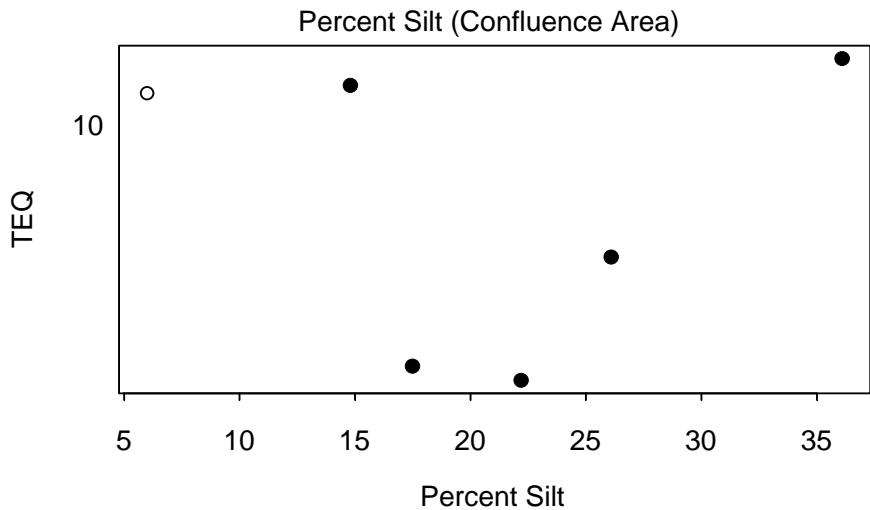
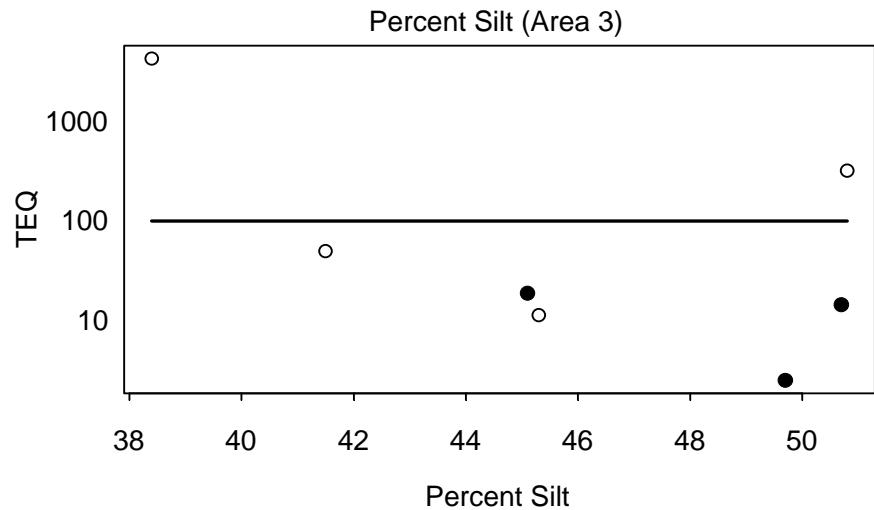
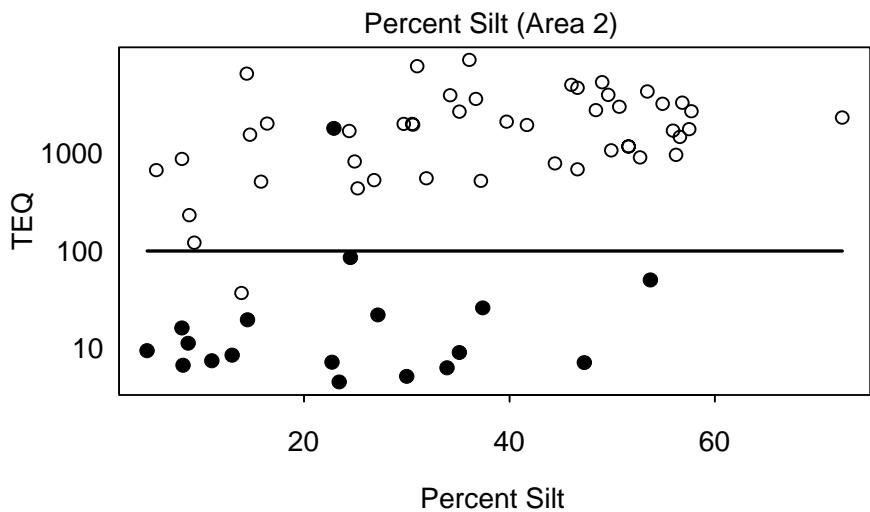
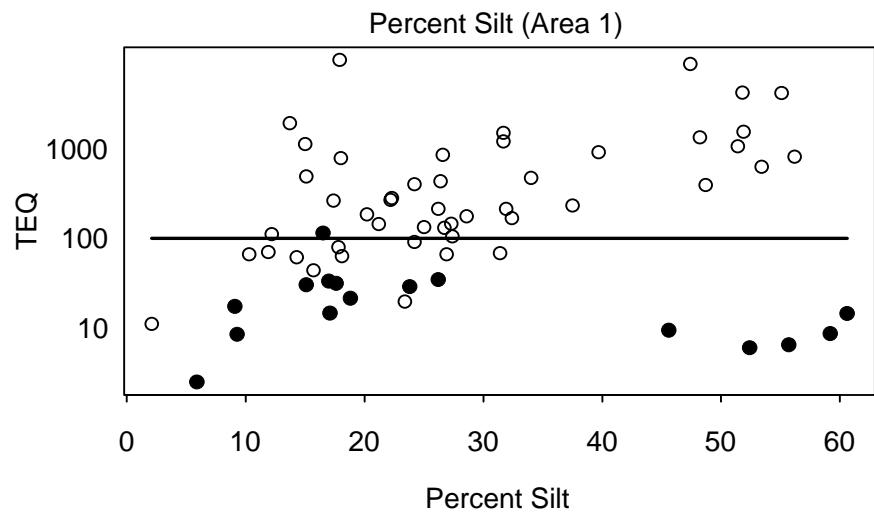
Solid=Outside Floodplain; Open=Inside Floodplain

TEQ versus Percent Clay



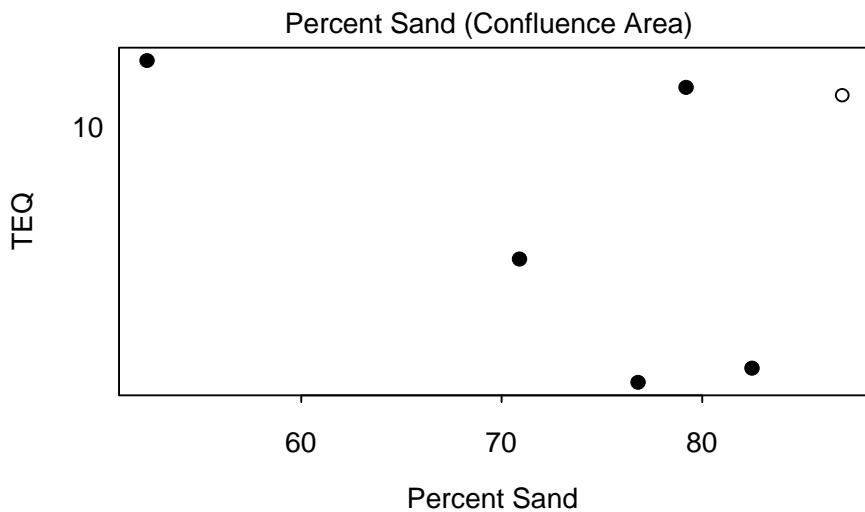
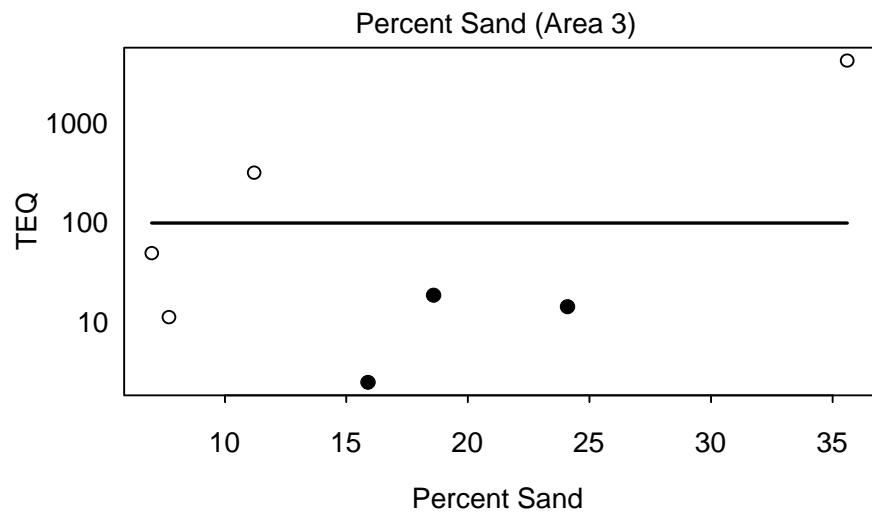
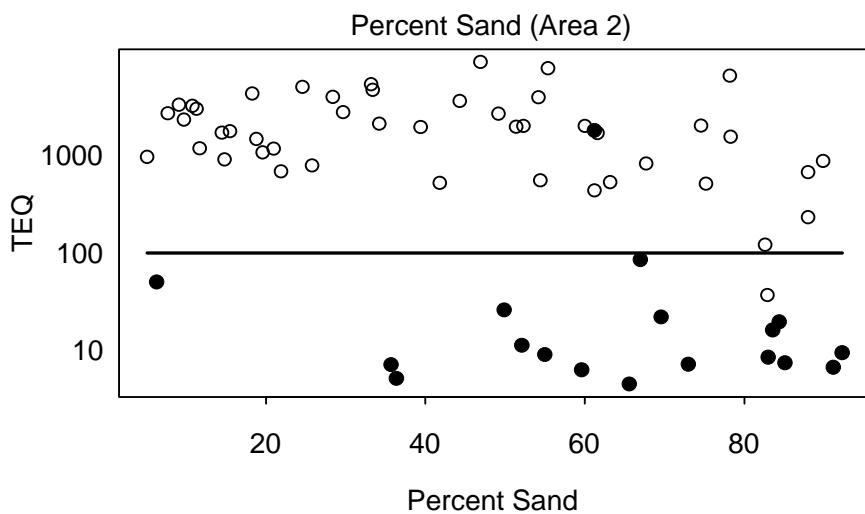
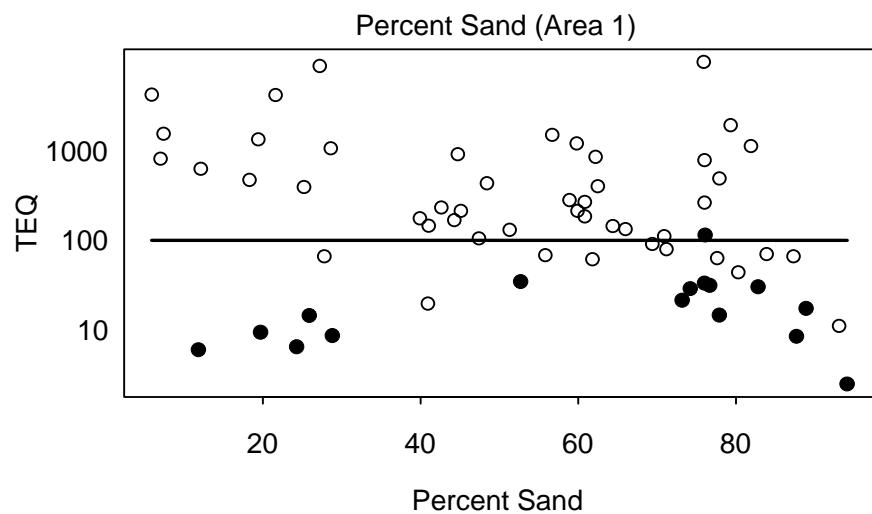
Solid=Outside Floodplain; Open=Inside Floodplain

TEQ versus Percent Silt



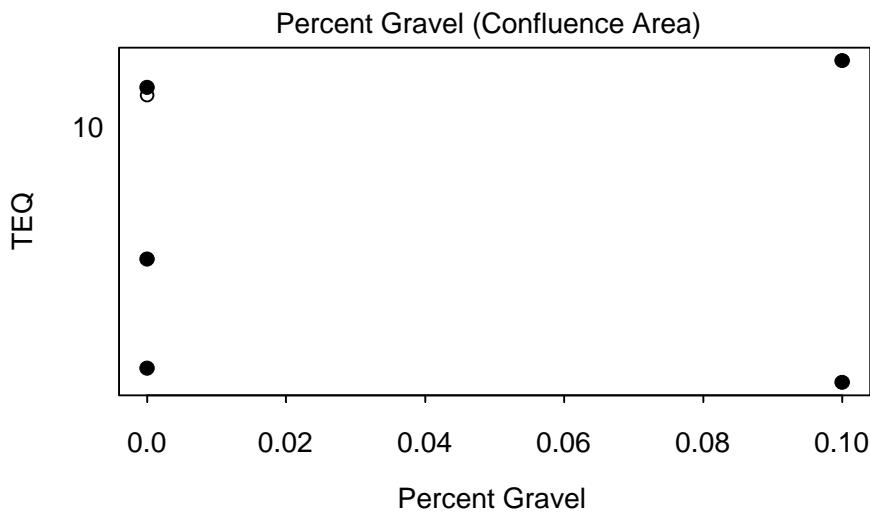
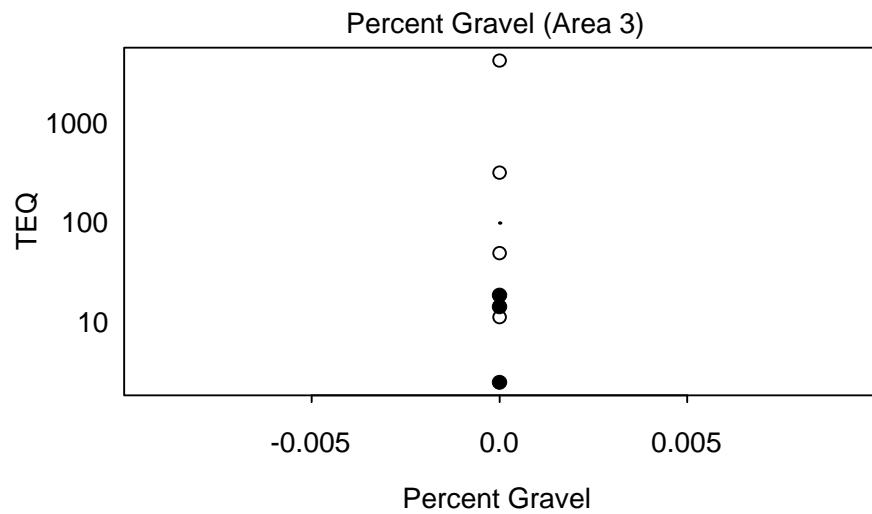
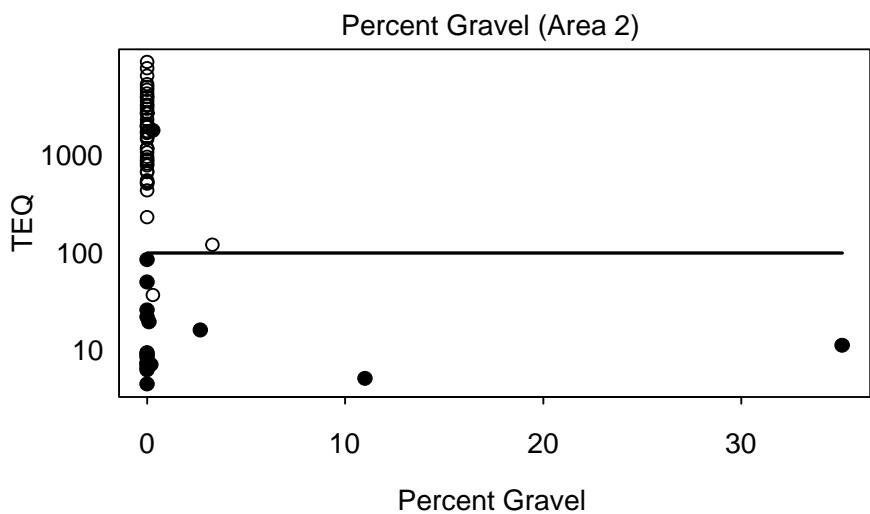
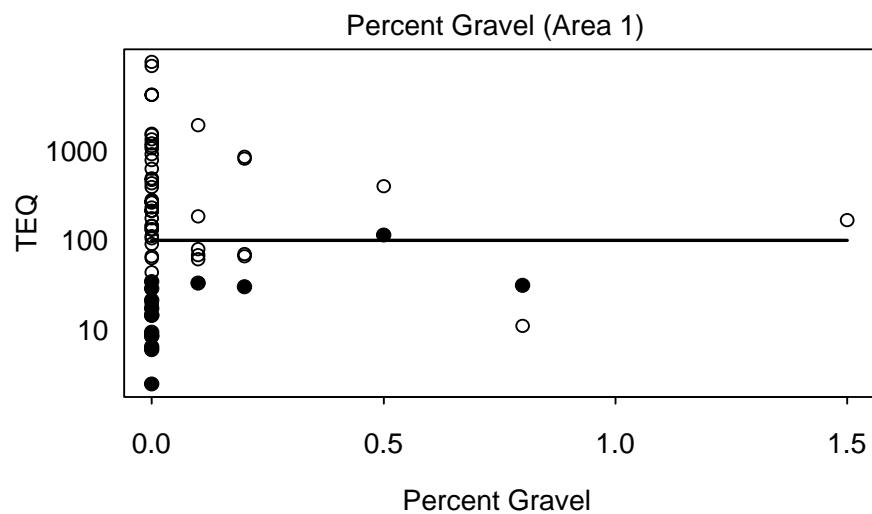
Solid=Outside Floodplain; Open=Inside Floodplain

TEQ versus Percent Sand



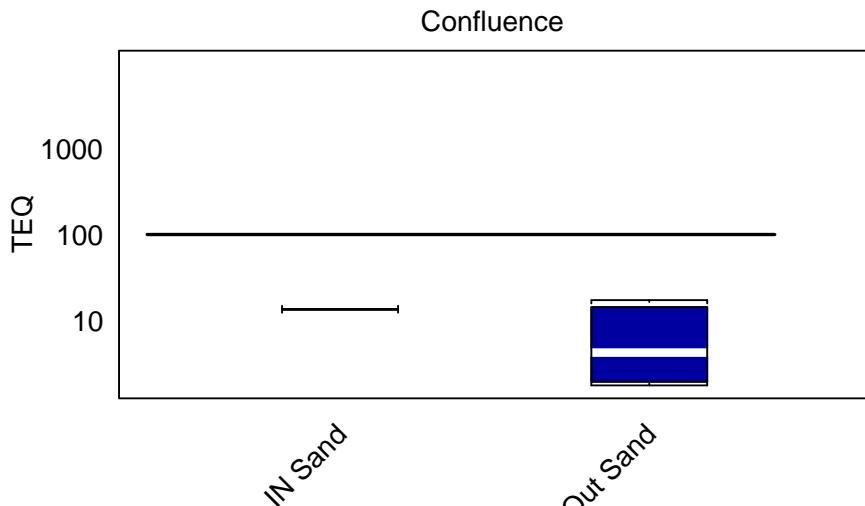
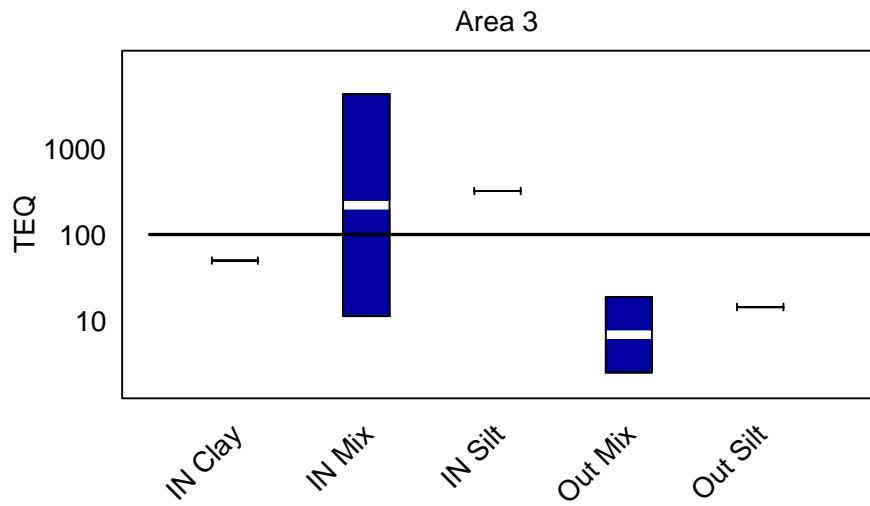
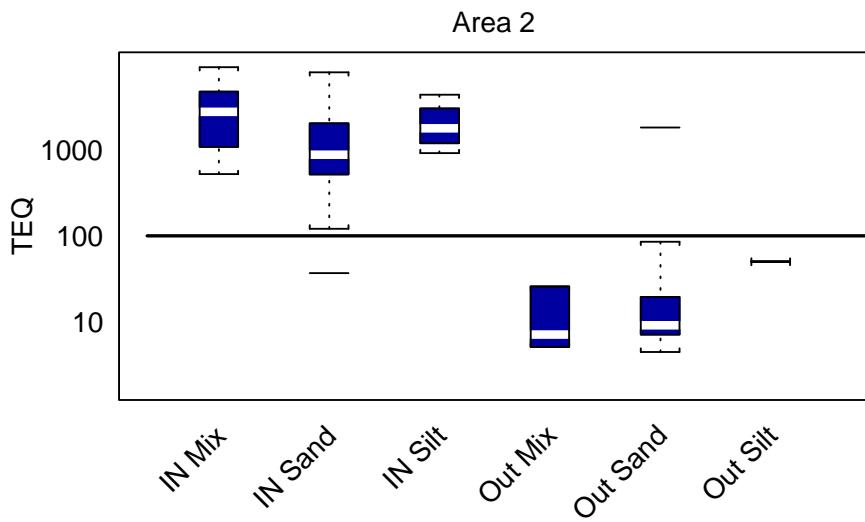
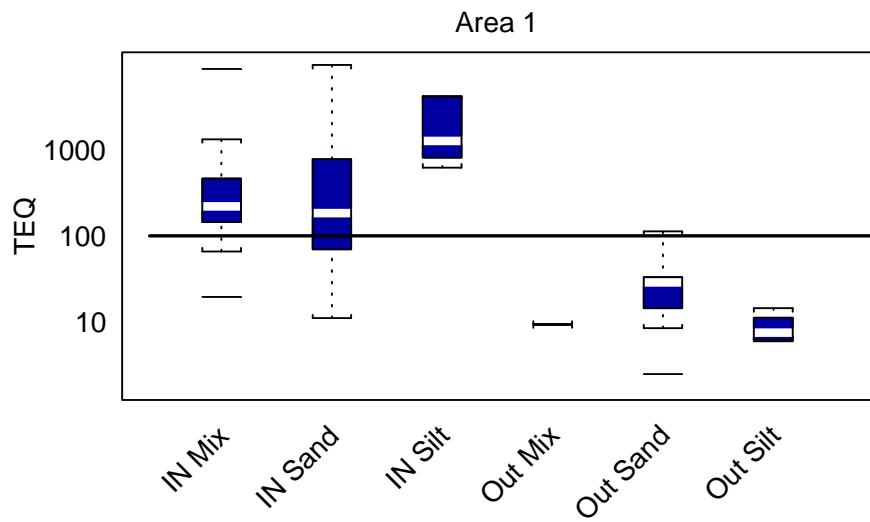
Solid=Outside Floodplain; Open=Inside Floodplain

TEQ versus Percent Gravel



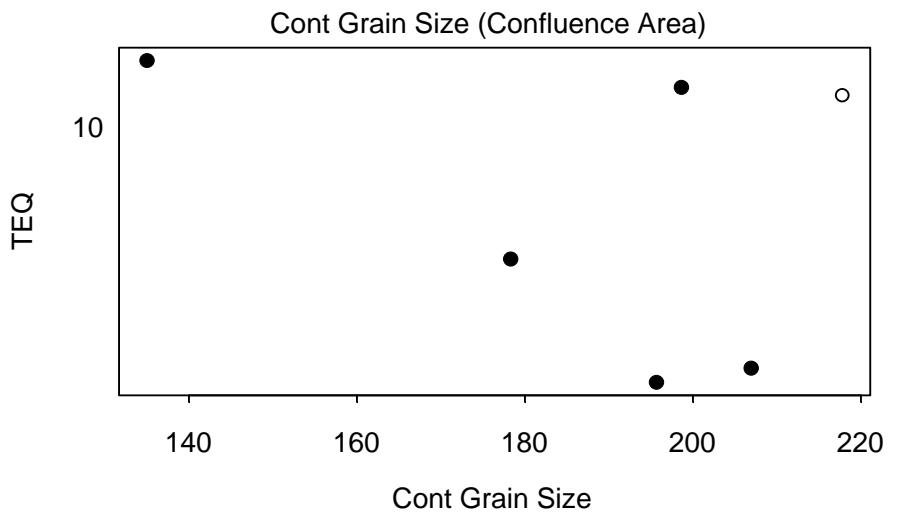
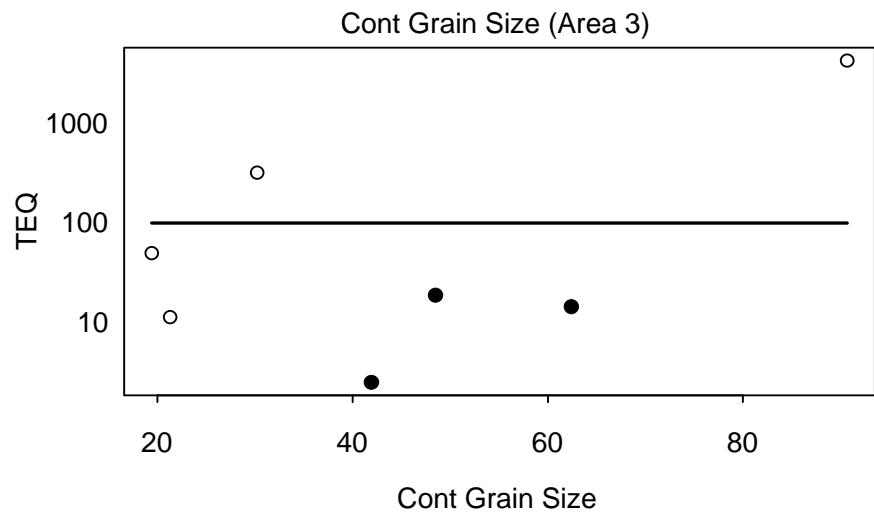
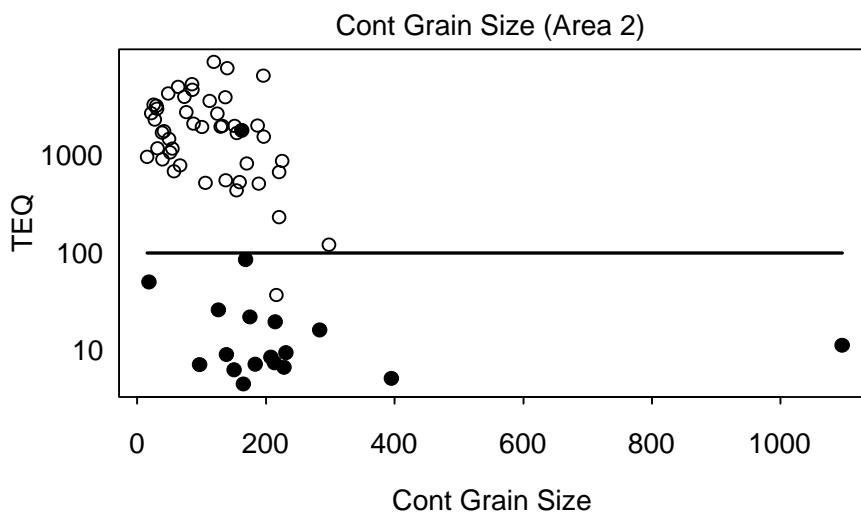
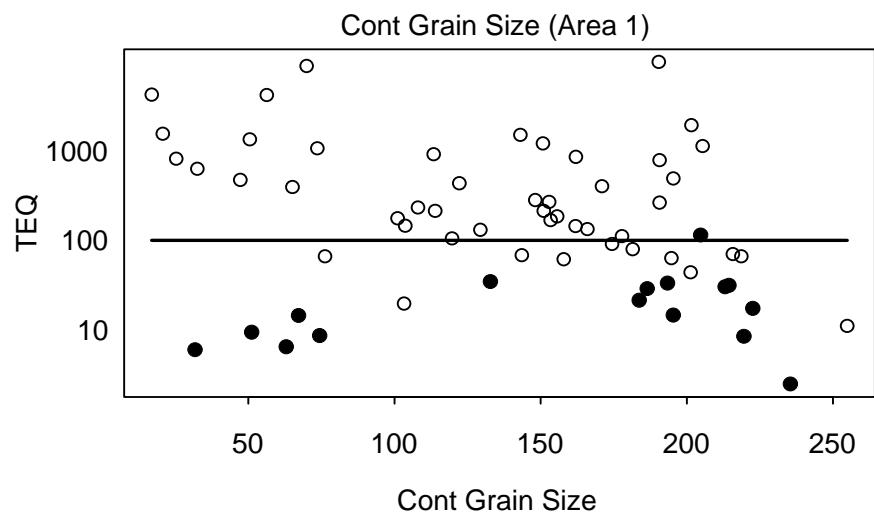
Solid=Outside Floodplain; Open=Inside Floodplain

TEQ versus Grain Size Category



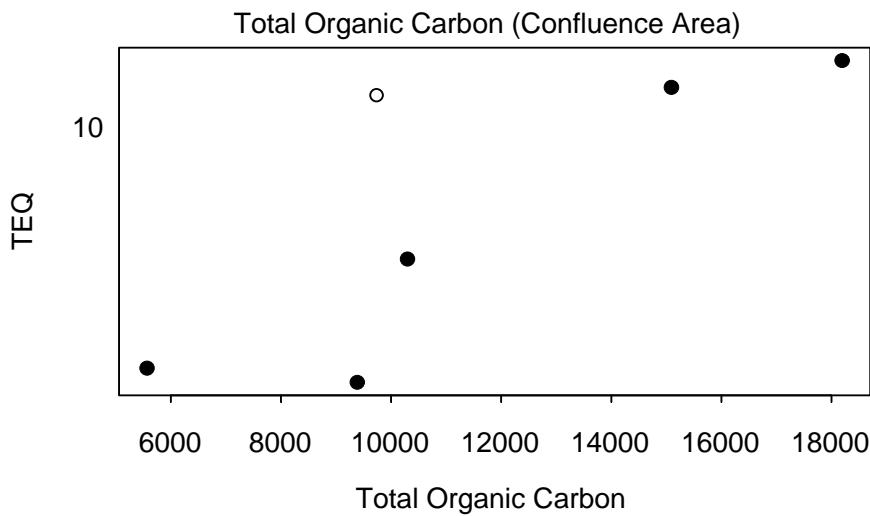
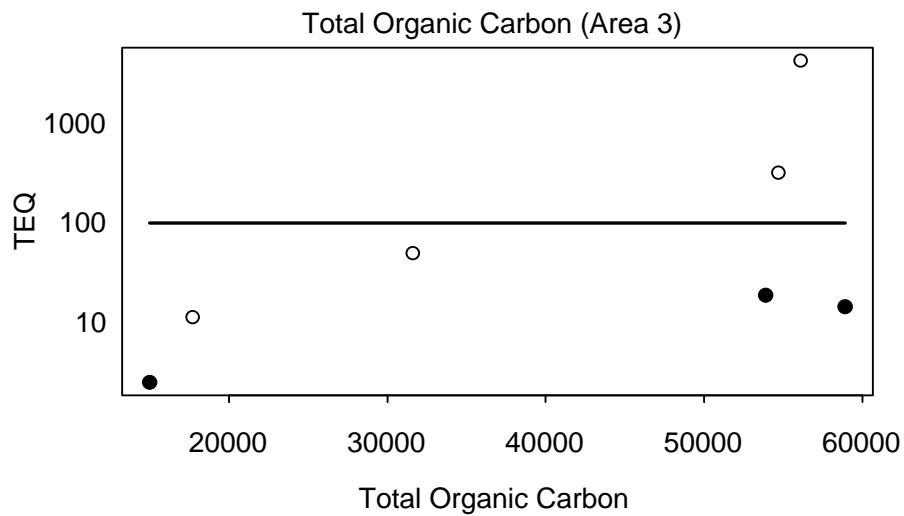
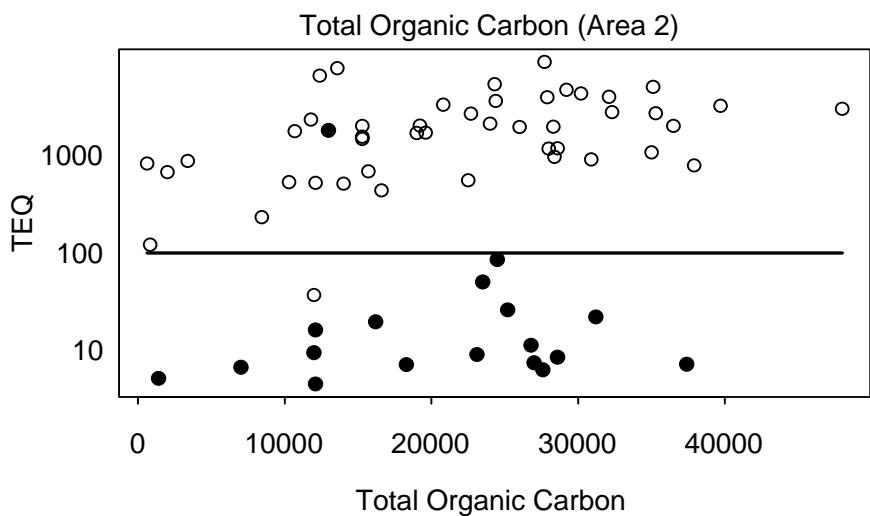
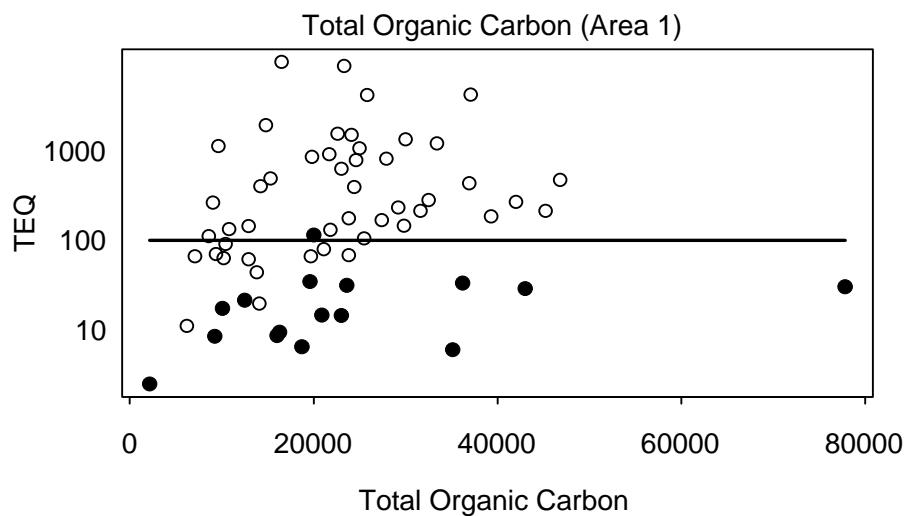
Separate boxplots are shown for Inside versus Outside the floodplain and for each Grain Size Category category

TEQ versus Cont Grain Size



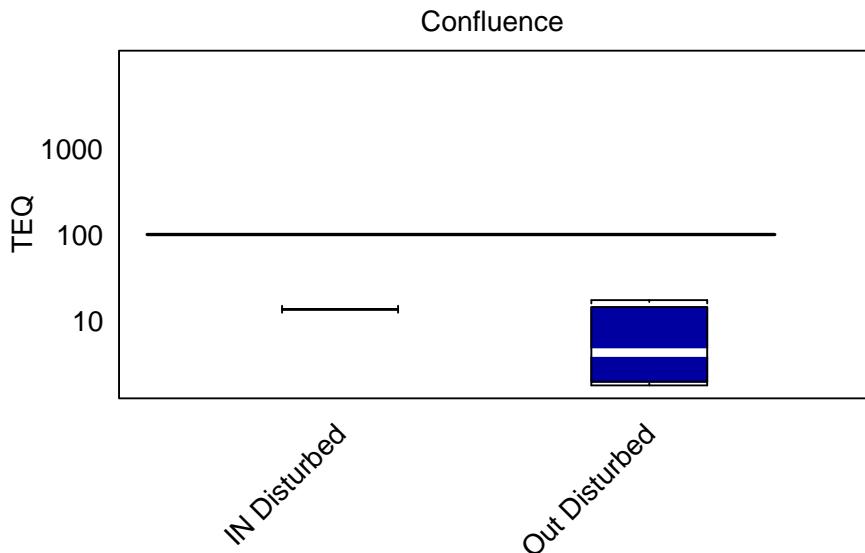
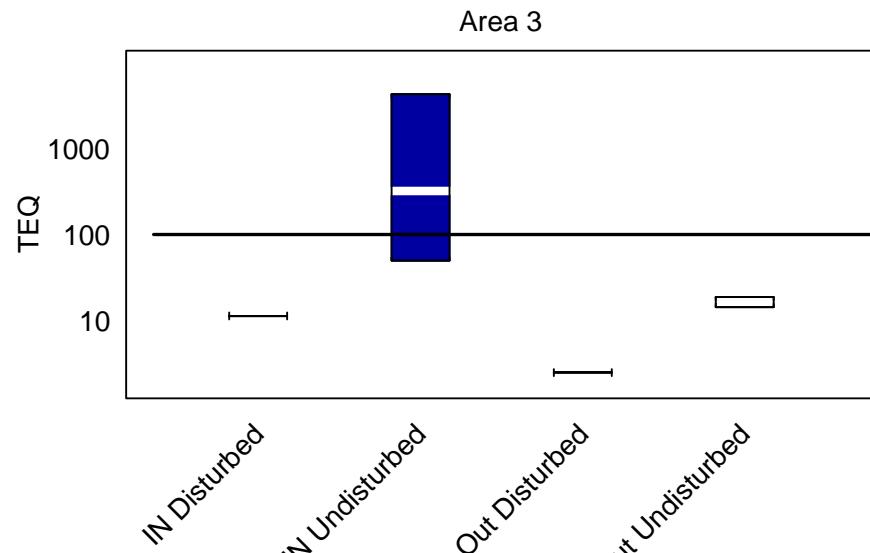
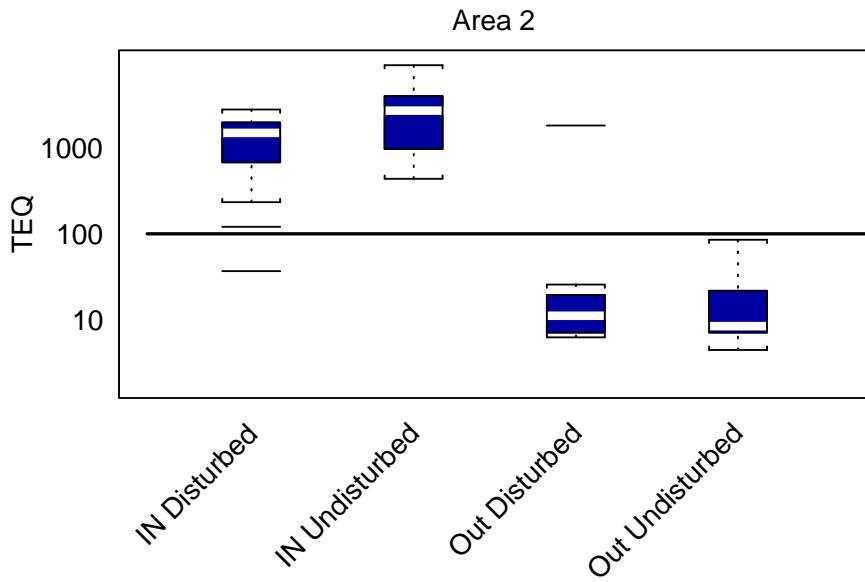
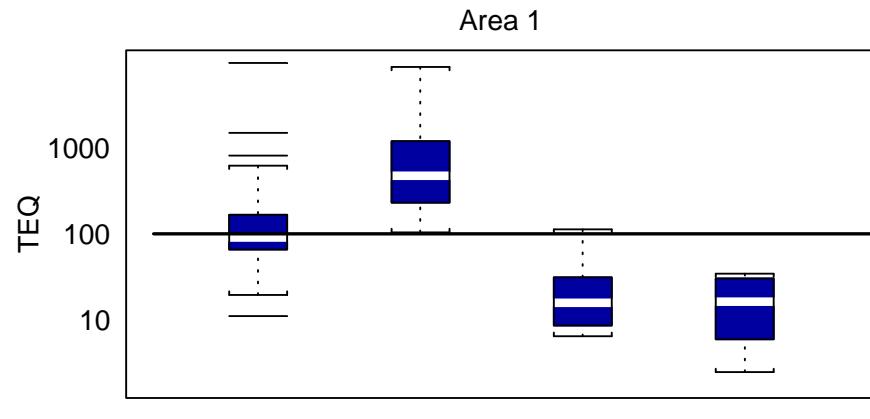
Solid=Outside Floodplain; Open=Inside Floodplain

TEQ versus Total Organic Carbon



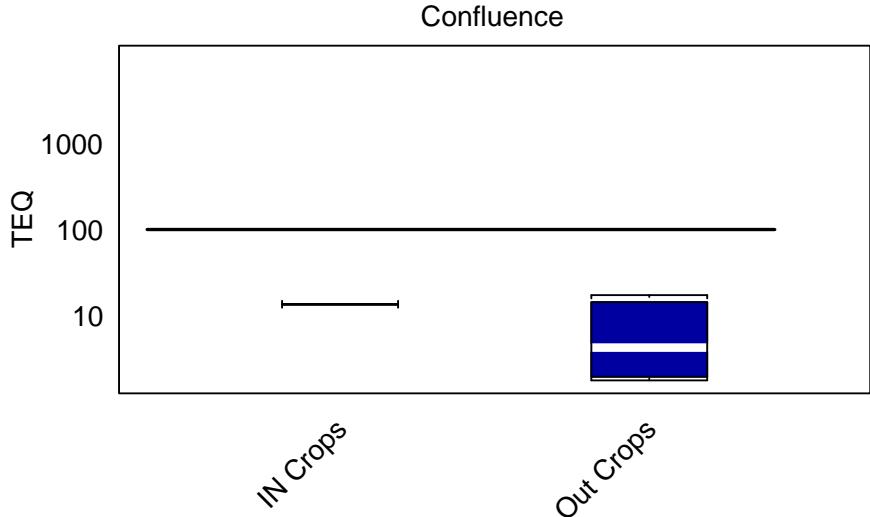
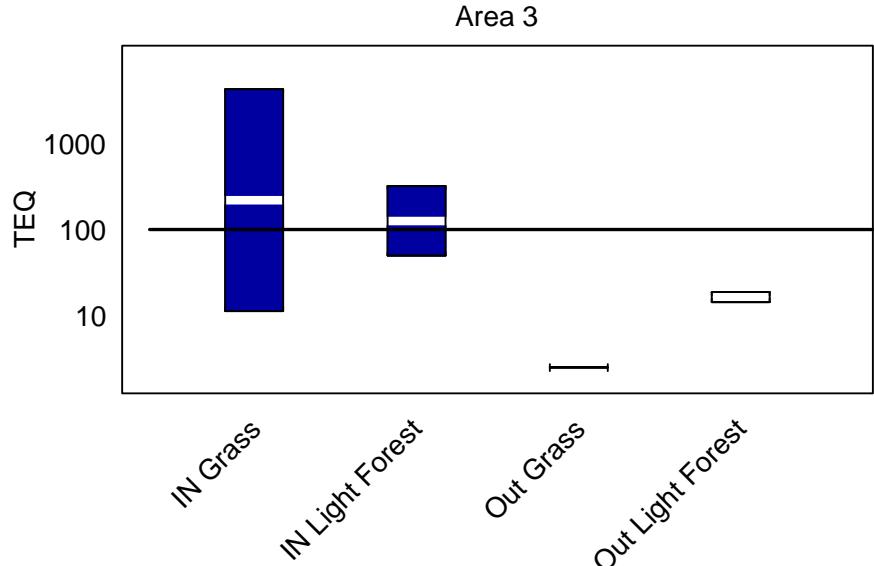
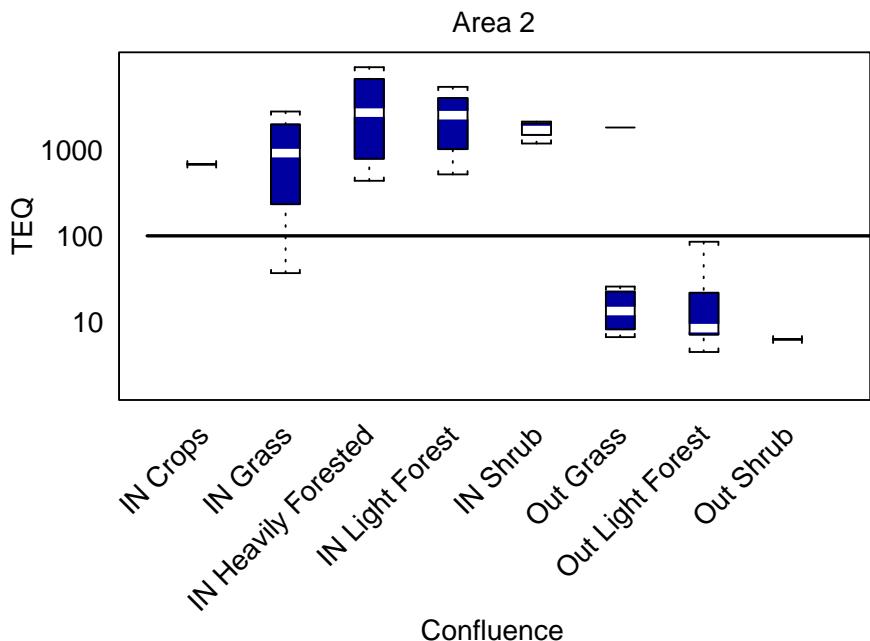
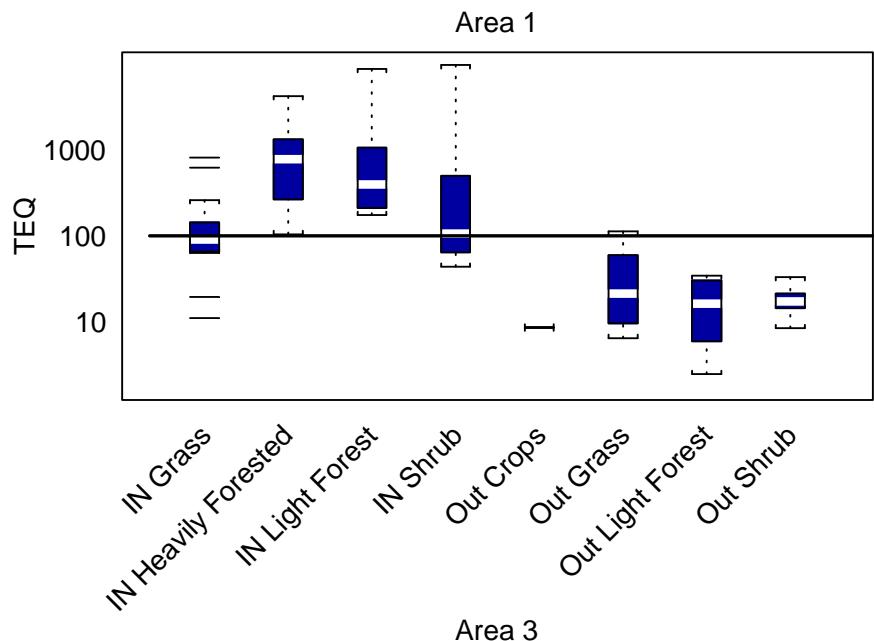
Solid=Outside Floodplain; Open=Inside Floodplain

TEQ versus Disturbance



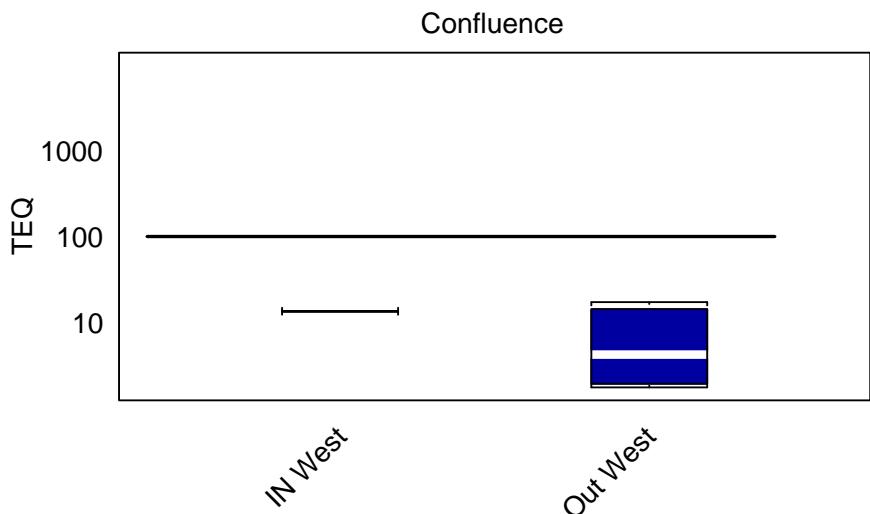
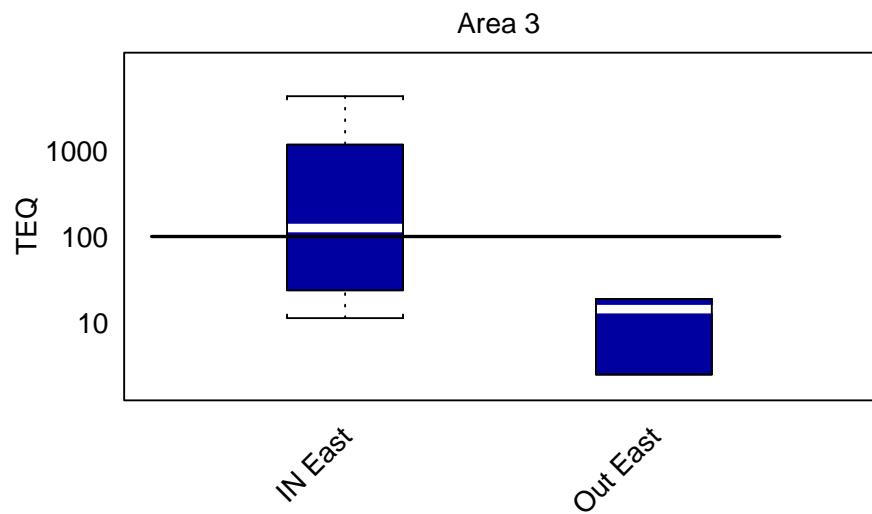
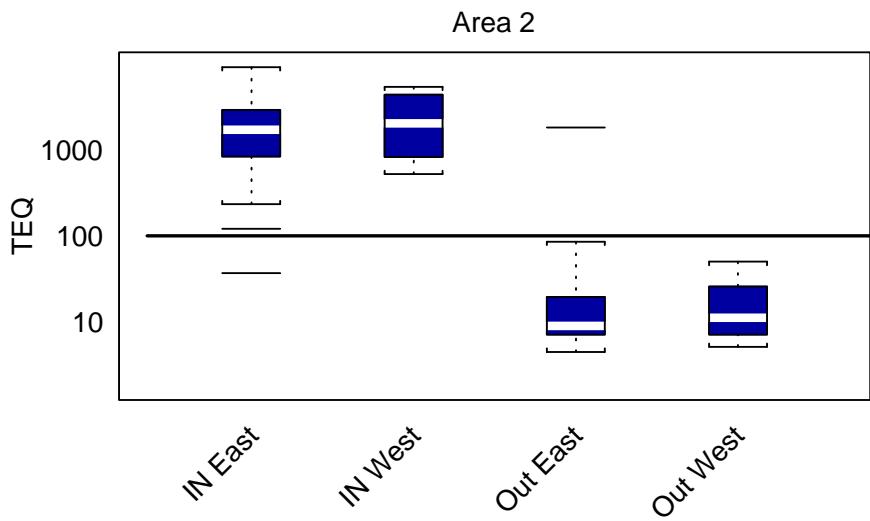
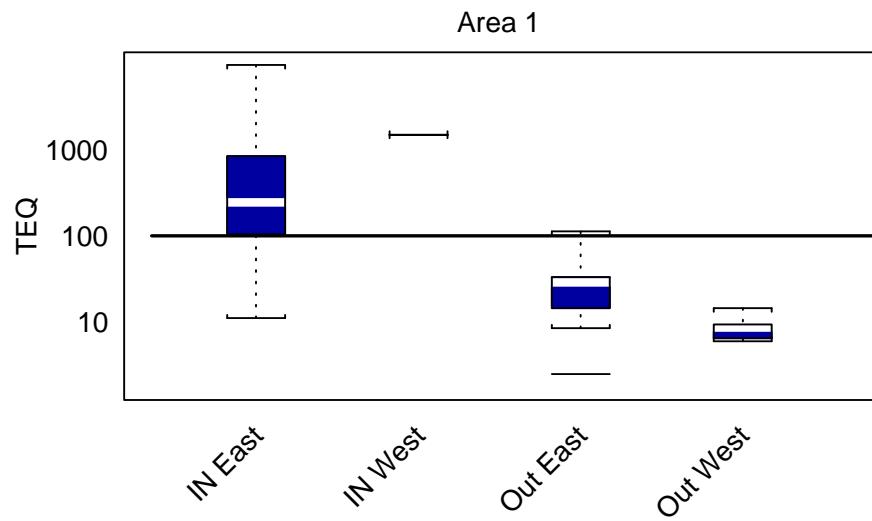
Separate boxplots are shown for Inside versus Outside the floodplain and for each Disturbance category

TEQ versus Vegetation



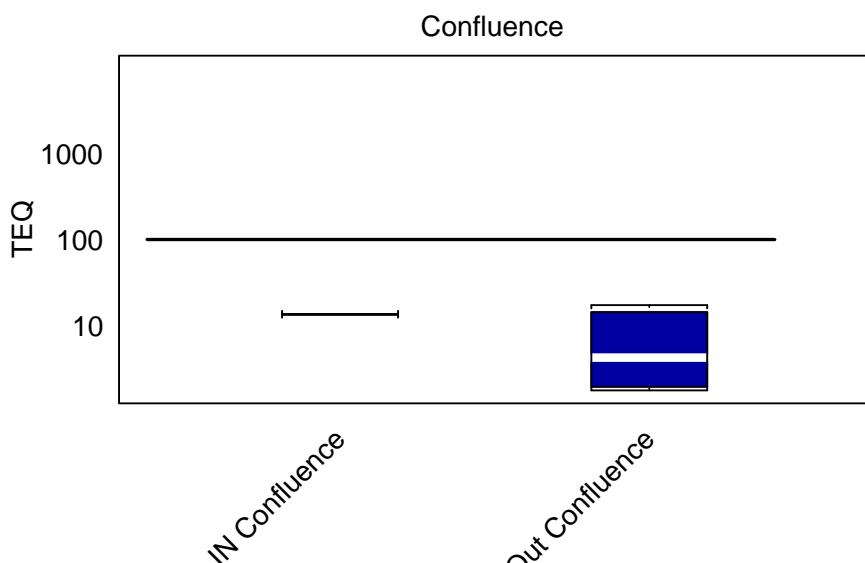
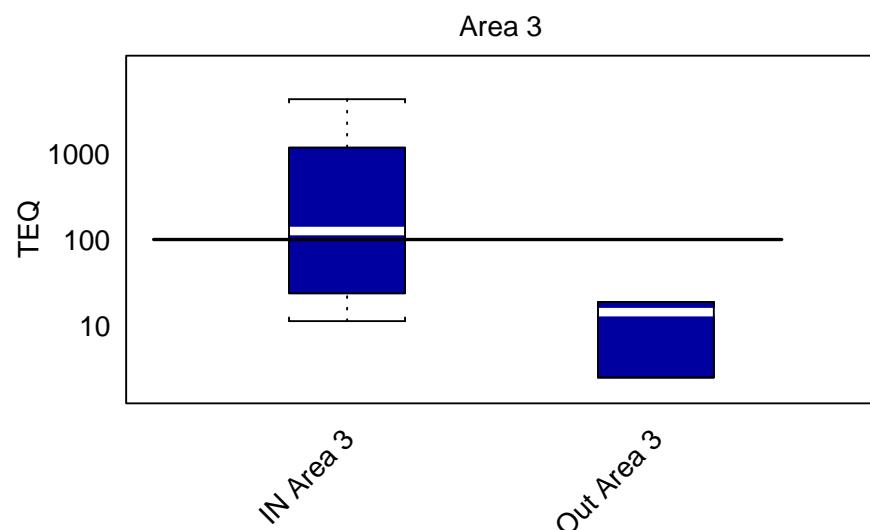
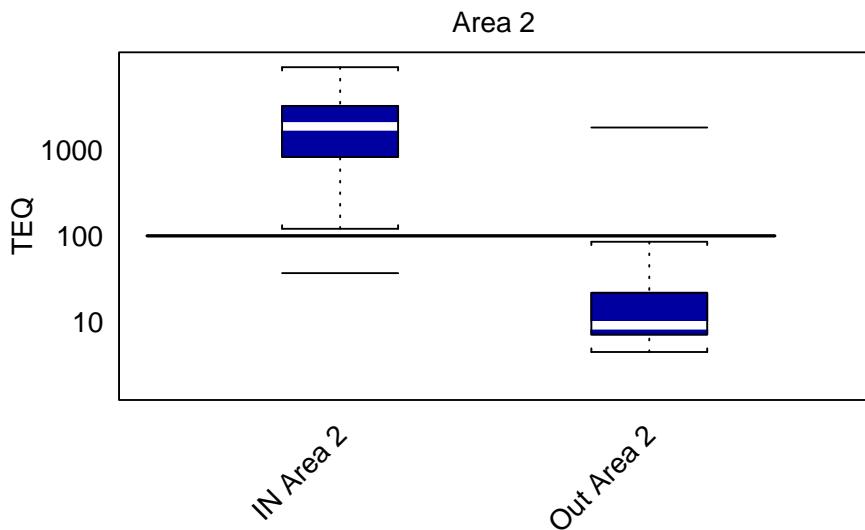
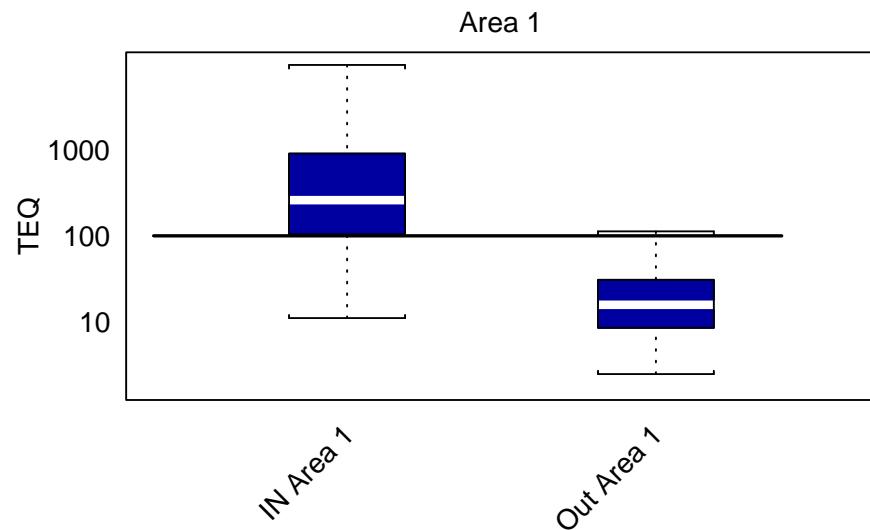
Separate boxplots are shown for Inside versus Outside the floodplain and for each Vegetation category

TEQ versus Side of River



Separate boxplots are shown for Inside versus Outside the floodplain and for each Side of River category

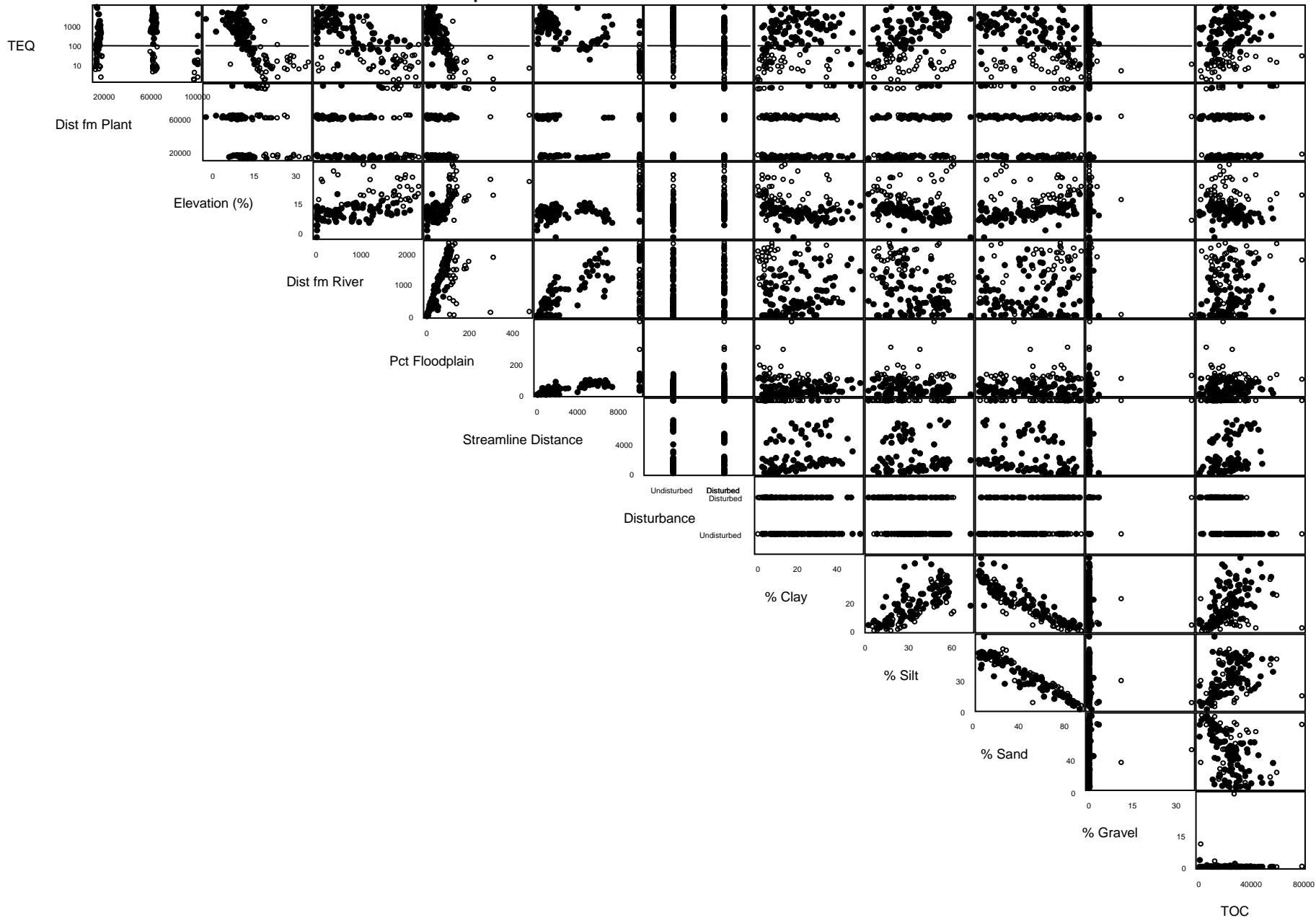
TEQ versus Study Area



Separate boxplots are shown for Inside versus Outside the floodplain and for each Study Area category

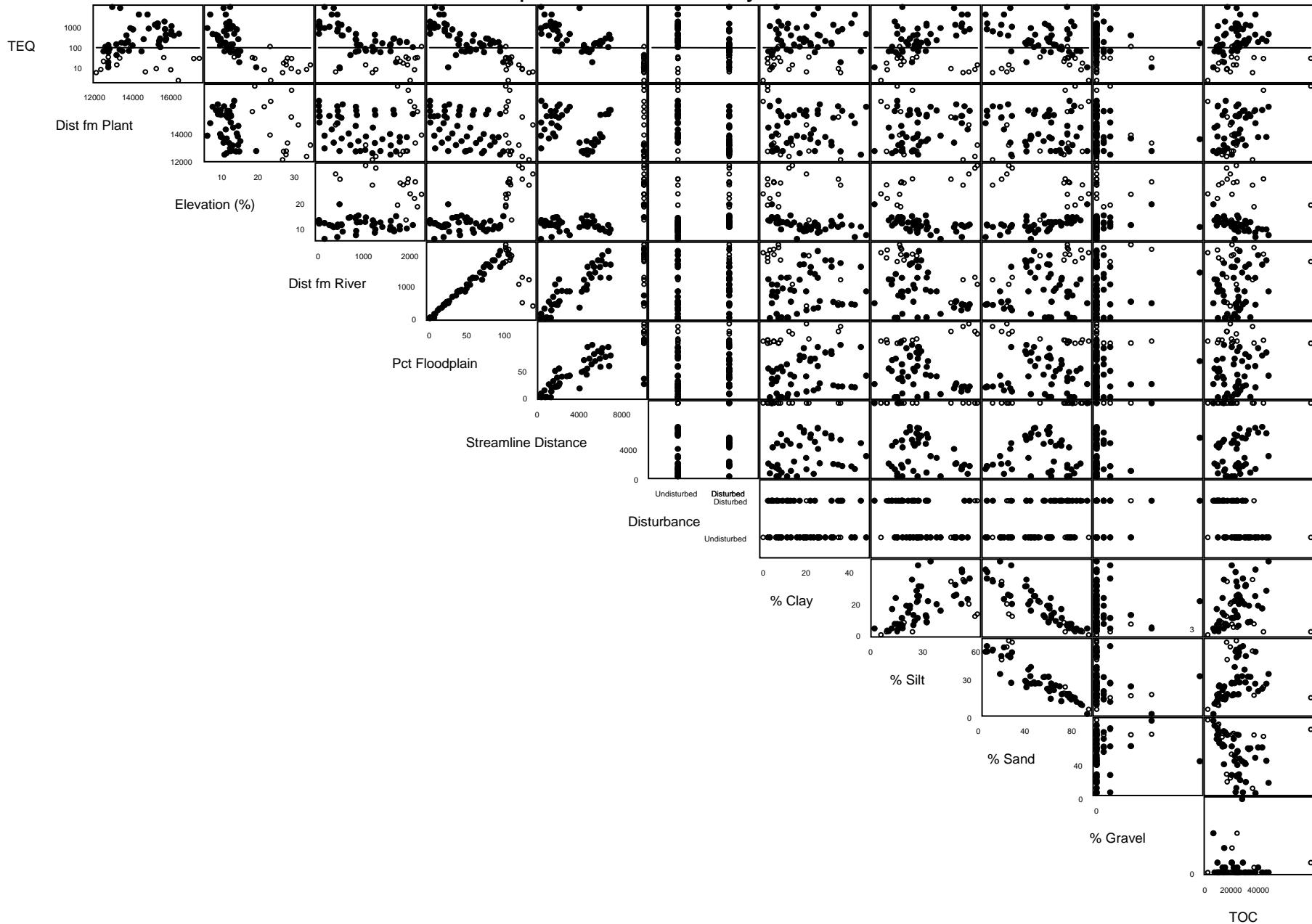
Attachment 2

Scatterplot Matrix for All Areas Combined



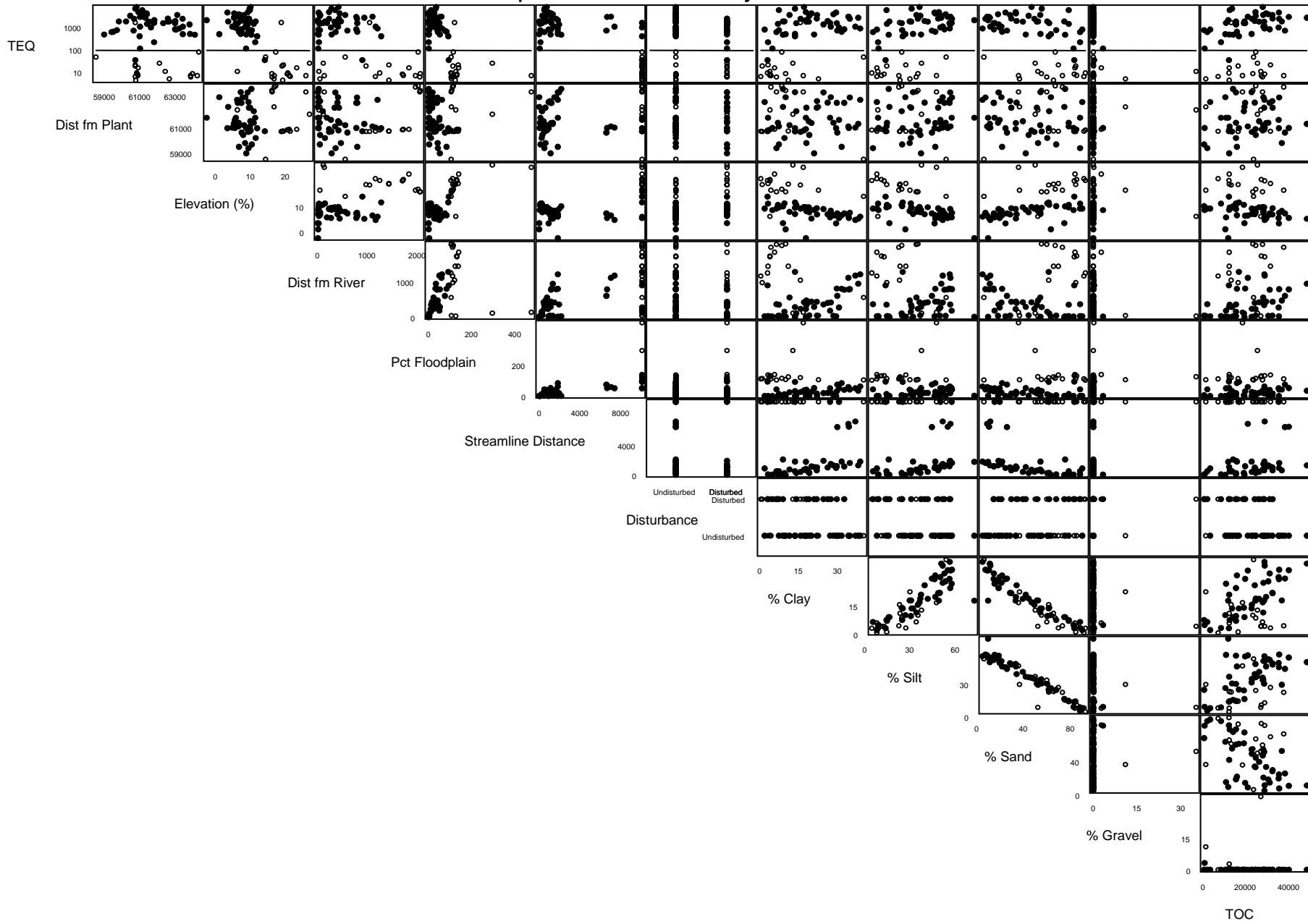
Solid Symbols: Outside Floodplain; Open Symbols: Inside Floodplain

Scatterplot Matrix for Study Area 1



Solid Symbols: Outside Floodplain; Open Symbols: Inside Floodplain

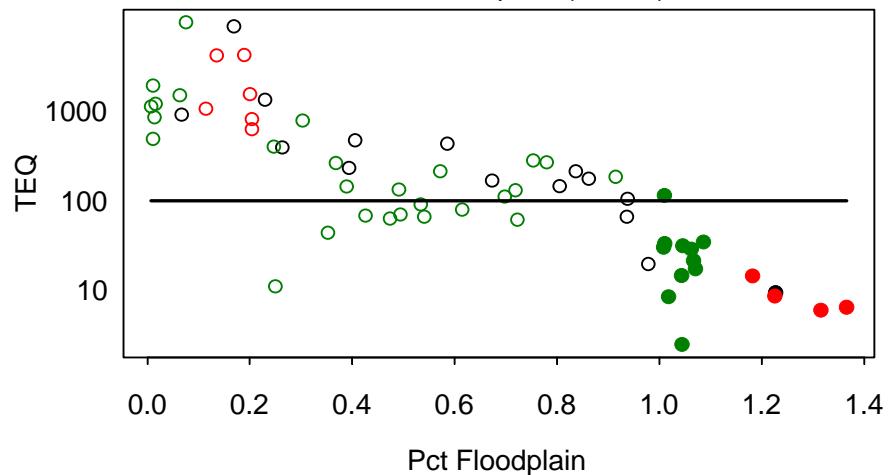
Scatterplot Matrix for Study Area 2



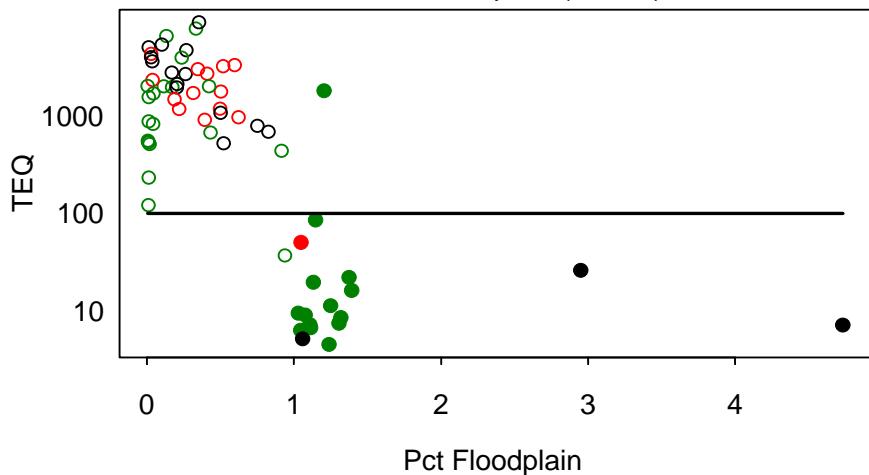
Attachment 3

TEQ Concentrations vs Distance-Related Factors and Soil Type

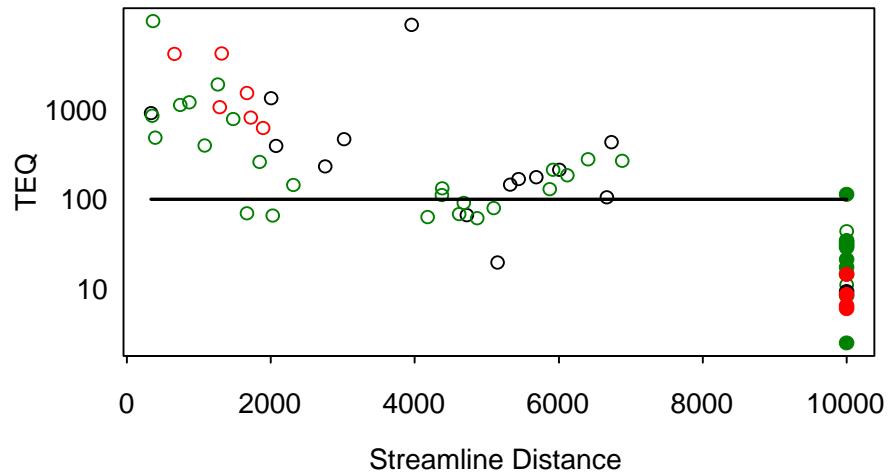
Percent Floodplain (Area 1)



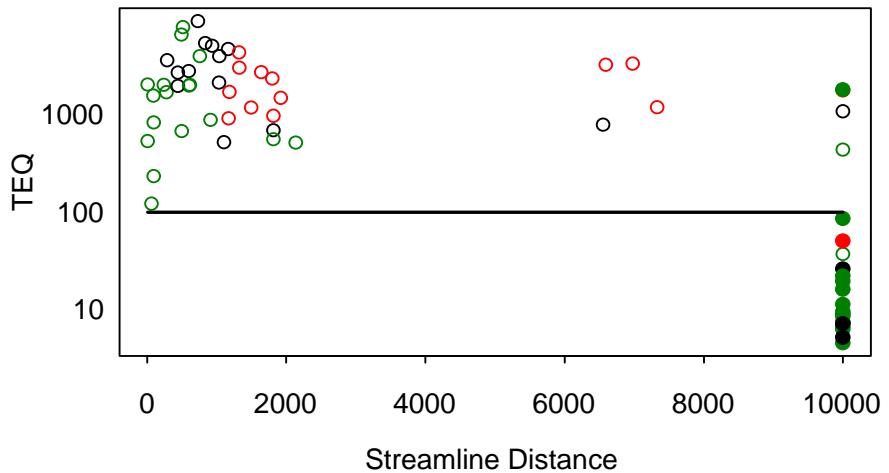
Percent Floodplain (Area 2)



Streamline Distance (Area 1)



Streamline Distance (Area 2)



Solid=Outside Floodplain; Open=Inside Floodplain; Blue=Clay; Red=Silt; Green=Sand; Black=Mixed